SAMSUNG

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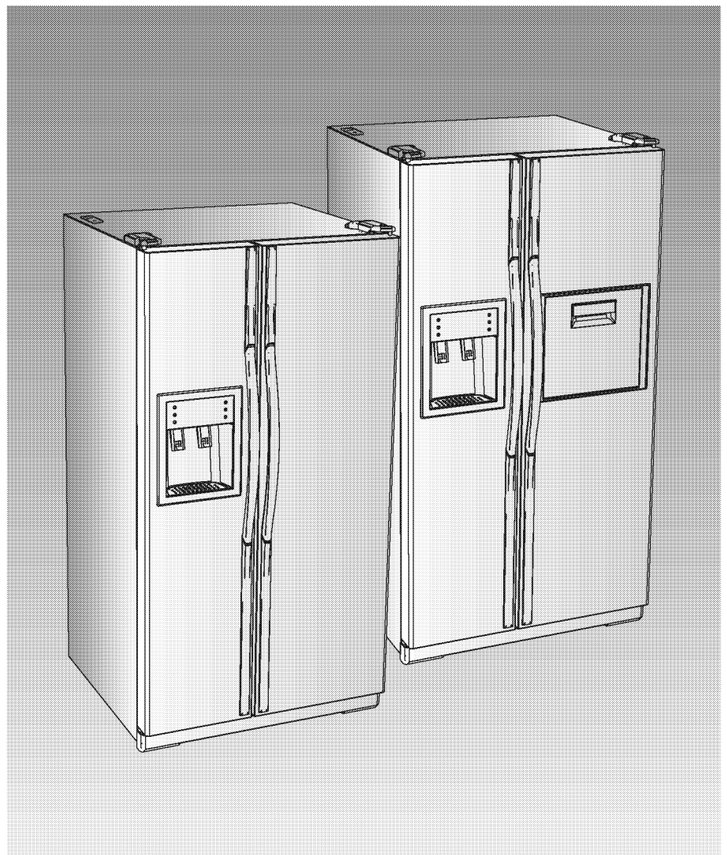
SAMSUNG

SAMSUNG Home Appliance Service

SERVICE GUIDE

For the latest parts information,
Please access to our service web site
(http://www.e4buyer.com/refrigerator)

SIDE-BY-SIDE REFRIGERATOR



Model:

RS 24*
RS 25*
RS 26*
RS 27*

WARNING

IMPORTANT SAFETY NOTICE

The service guide is for service men with adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or dealer cannot be responsible for the interpretation of this information.

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Contents

1. Introduction 4

2. Installation 5

3. Nomenclature 6

4. Specifications 7

5. Interior Views and Dimensions 8

6. Refrigeration Cycle and Cool Air Circulation Route 10

7. Mechanical Disassembly 12

8. Operation Function 22

9. Circuit Descriptions 37

10. Diagnostics 46

11. Illustrated Parts Catalog 58

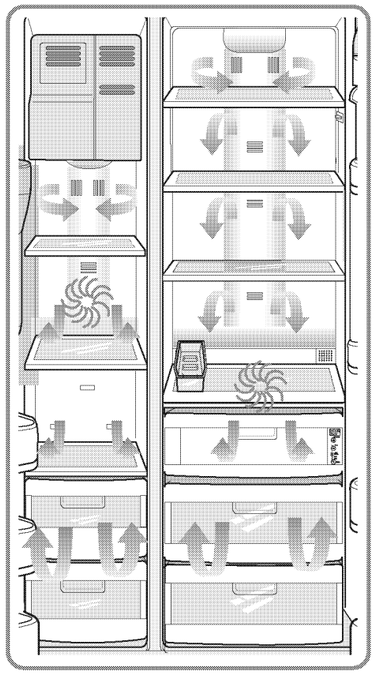
12. Safety instruction on services 74

- Appendix Ⅰ (Reference for circuit diagnostics) 75

- Appendix Ⅱ (Circuit diagram) 80

1. INTRODUCTION

● **A newly developed SAMSUNG side by side refrigerator in 2002 has the following characteristics.**



1) Twin Cooling System

· The refrigerator and the freezer have two evaporators. Given this independent system, the freezer and the refrigerator are cooled individually as required and are, therefore, more efficient. Food odor from the refrigerator does not affect food in the freezer due to separate air flow circulation.

2) Multi-Flow System

· Cool air circulates through multiple vents on every shelf level. This provides even distribution of cooling inside cabinets to keep your food fresh longer.

3) Xtra Space™

· Vertical room next to the ice maker in the freezer provides space for pizza etc.

4) Door Alarm

· Beep sound reminds you the door is open.

5) Xtra Fresh™

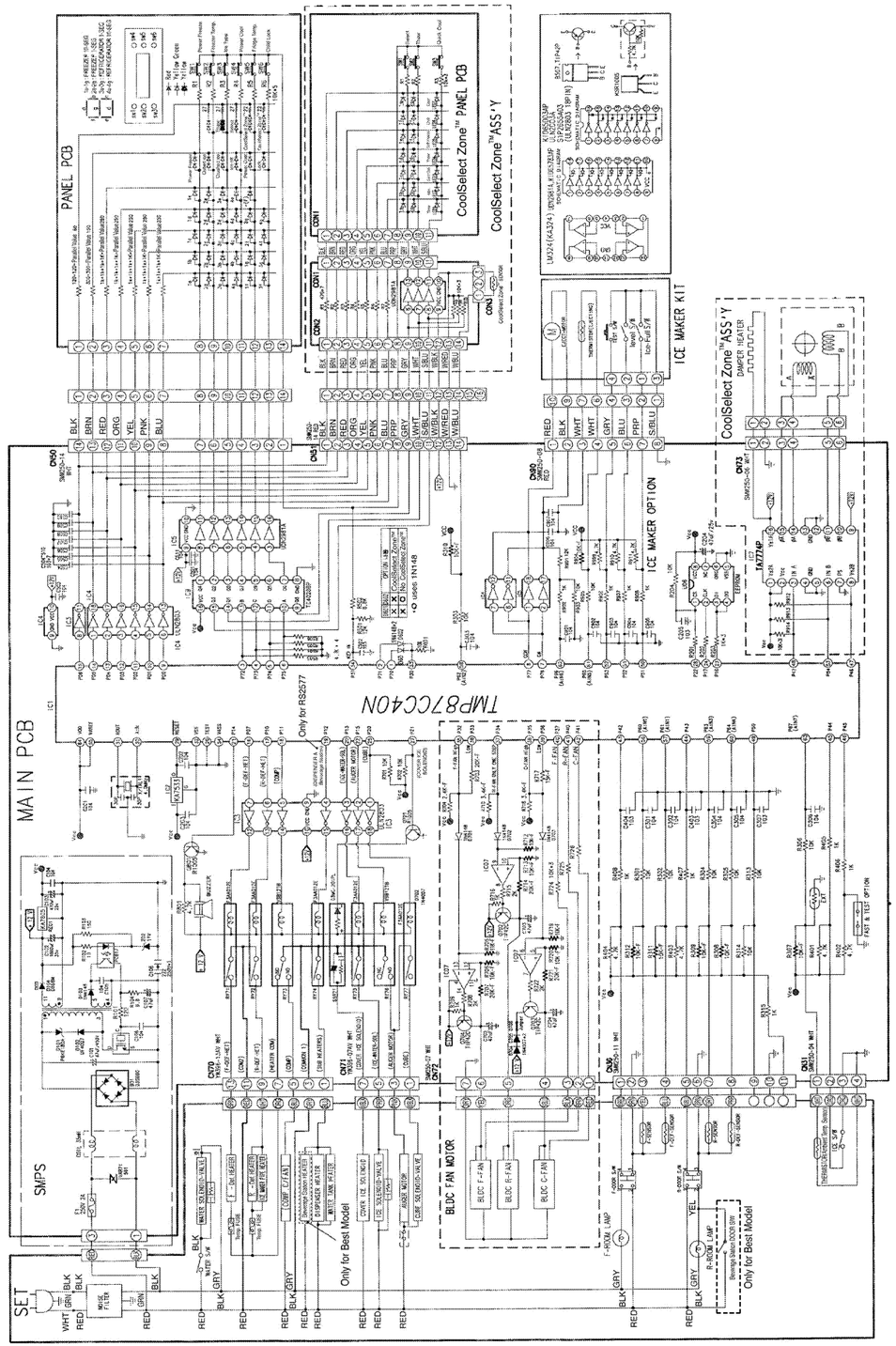
· Optimized humidity control keeps vegetables & fruits fresh.

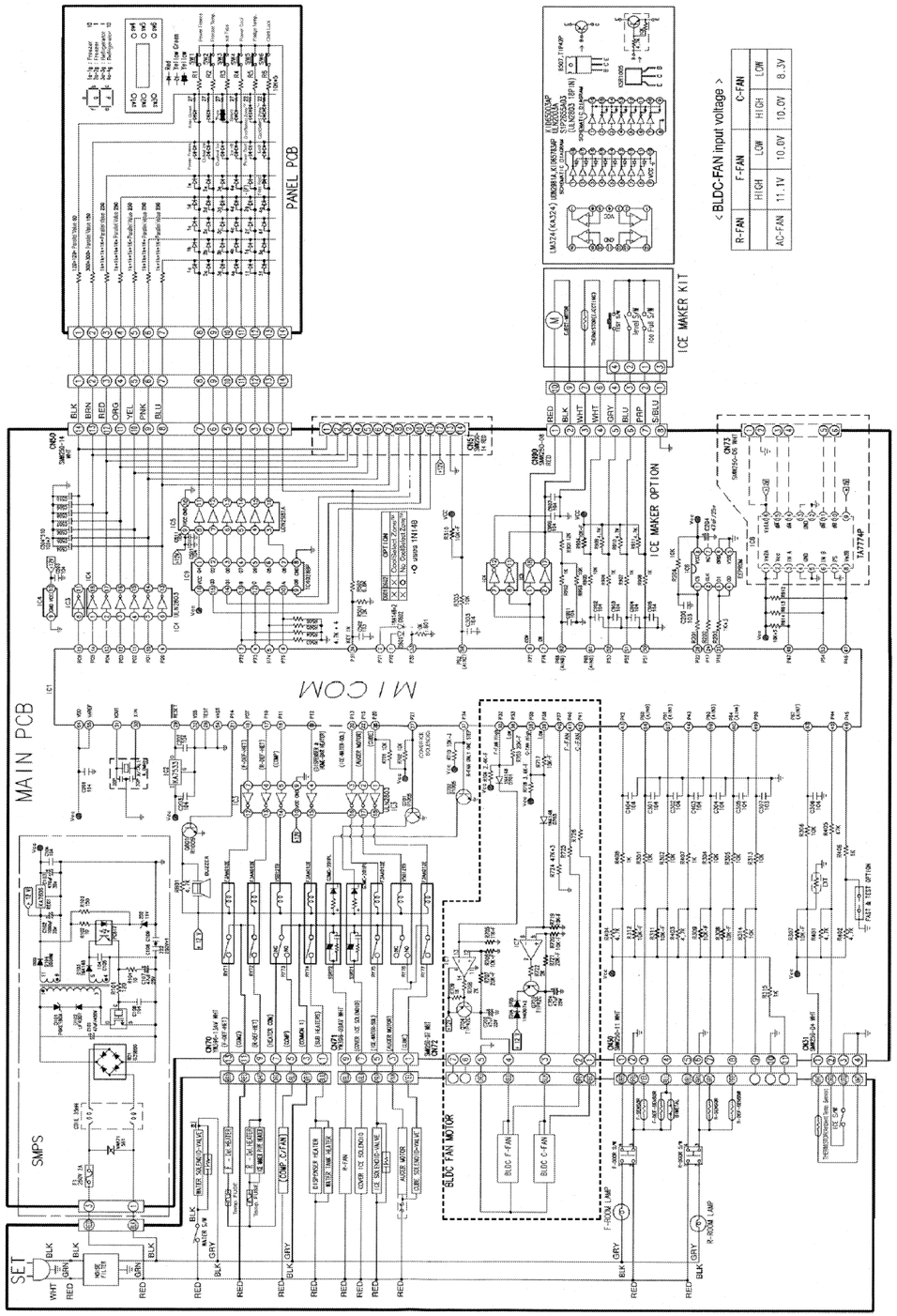
6) Deodorizer

· Reusable deodorizer keeps the refrigerator air fresh and odor free.

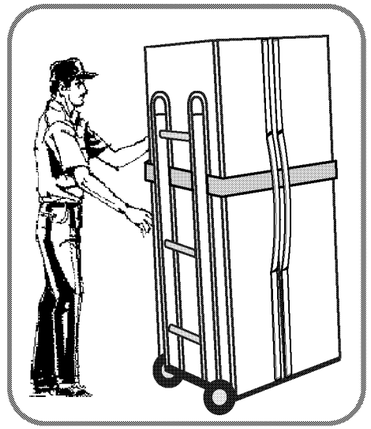
7) CoolSelect Zone™ Drawer (Optional)

· User can select Quick Cool, and Select for quickly soft freeze, chill, and cool. Select Soft freeze,Chill or Cool to control the temperature of the drawer.





2. INSTALLATION



1) To protect refrigerator in movement
Use padded hand truck as shown. If entrance width is less than 1m, remove doors prior to installation and reattach doors according to procedure below.

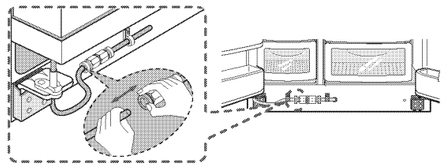
2) Remove all protective tape and pad in refrigerators.
Connect water lines and power cord. Adjust the clearance between the doors.

3) Set the temperature control to the temperature and wait for an hour.
The refrigerator should get slightly chilled and the motor runs smoothly.

4) Once the refrigerator temperature is sufficiently low
You can store food in the refrigerator. After starting the refrigerator, it takes a few hours to reach the appropriate temperature.

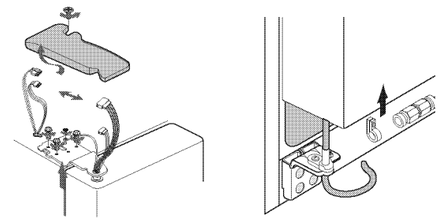
● Removing Doors

Open the freezer and refrigerator doors, and then take off the front leg cover assembly by turning the three screws counter-clockwise. Remove the screw from clamp disconnect, the water tube by pressing the coupler, and pulling the water tube away.



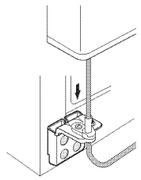
With the door closed, remove the upper hinge cover using a screwdriver, and then disconnect the wires. Remove hinge screws and ground screw counter-clockwise, and take off the upper hinge. Take care removing the door to ensure that it does not fall on you.

Remove the door from the lower hinge by carefully lifting the door so as not to damage the water tube. Remove the lower hinge from the lower hinge bracket by lifting the lower hinge.

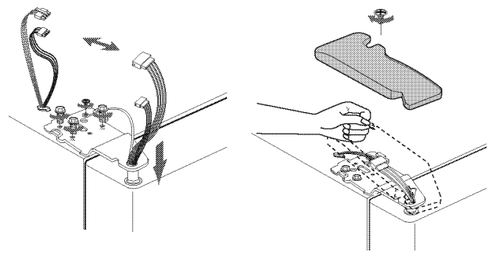


● Attaching Doors

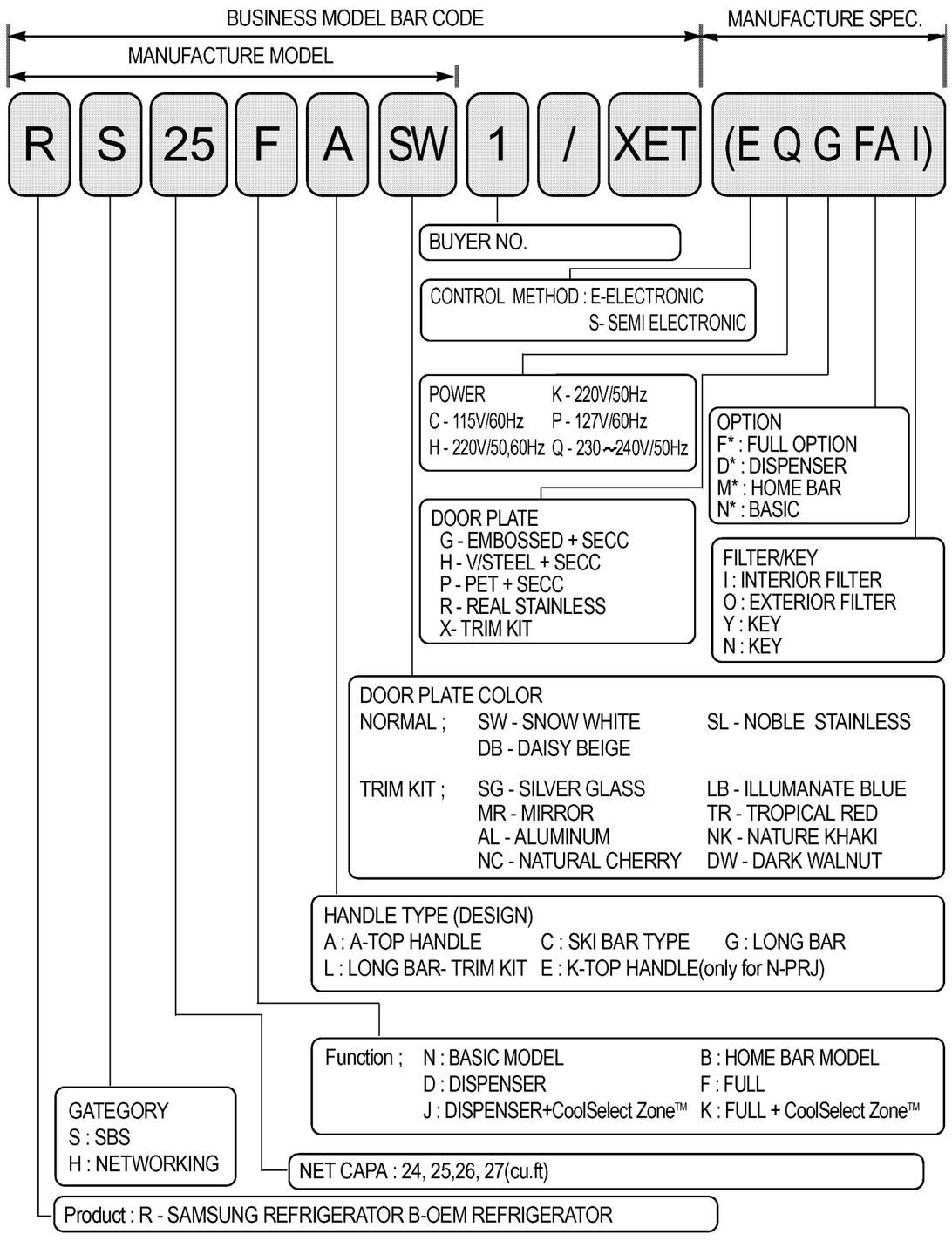
Insert the lower hinge in the bracket lower hinge. Attach the freezer door by inserting the hose in the lower side of the door into the hole in the lower hinge and pulling the hose down.



Insert the upper hinge shaft into the hole. After leveling between the upper hinge hole and the hole of the cabinet. Reattach hinge screws and screw in the clockwise direction. Connect the wires. Put the front part of the upper hinge cover on the front part of the upper hinge and reattach from the front part of the upper hinge cover first.



3. Nomenclature



Appendix Ⅰ (Reference for circuit diagnostics)

Ref. 7) Service part lists of each circuit board.

NO	CODE-NO	PART NAME	SPECIFCATION	Q'TY
1	DA41-00104E	Main PCB ASS'Y	Dispenser with CoolSelect Zone™	1
2	DA41-00134A	Main PCB ASS'Y	Dispenser	1
3	DA41-00105C	PANEL PCB ASS' Y	Dispenser with CoolSelect Zone™	1
4	DA41-00105D	PANEL PCB ASS' Y	Dispenser	1
5	DA32-00006B	R-DEFROST Sensor	502AT, PX-41C	1
6	DA32-10109V	Ambient Temp. Sensor	502AT, PX-41C	1
7	DA32-10109W	F-Temp.Sensor	502AT, PX-41C	1
8	DA32-00006A	F-DEFROST Sensor	502AT, PX-41C	1
9	DA32-10105U	R-Temp.Sensor	502AT, PX-41C	1
10	DA32-10109X	CoolSelect Zone™ Sensor	502AT, PX-41C	1
11	DA41-00108A	CoolSelect Zone™ PCB ASS' Y	CoolSelect Zone™ MAIN+PANEL	1
12	3301-000016	FERRITE CORE (LOCK TYPE)	-	1
13	DA27-00002A	NOISE FILTER	Commonly used in ET-PJT	1

※ The last no. of the code number such as DA41-xxxxx? for the Main PCB-ASS'Y could be changed by MICOM and option.

Appendix Ⅰ (Reference for circuit diagnostics)

Ref. 6) Table of temperature sensor according to resistance and voltage conversion.

The input voltage to the MICOM PORT could be different by a hardware. This is a table based on the voltage using the 10kohm-F.
MICOM PORT voltage when the sensor is open: about DC 5V(Vcc LEVEL)
MICOM PORT voltage when the sensor is shorted: about DC 0V(Ground LEVEL)

Temp.(℃)	Resistance(㏀)	Voltage(V)	Temp.(℃)	Resistance(㏀)	Voltage(V)	Temp.(℃)	Resistance(㏀)	Voltage(V)	Temp.(℃)	Resistance(㏀)	Voltage(V)
-42	98.870	4.541	-19	30.920	3.778	4	11.250	2.647	27	4.650	1.587
-41	93.700	4.518	-18	29.500	3.734	5	10.800	2.596	28	4.487	1.549
-40	88.850	4.494	-17	28.140	3.689	6	10.370	2.545	29	4.329	1.511
-39	84.150	4.469	-16	26.870	3.644	7	9.959	2.495	30	4.179	1.474
-38	79.800	4.443	-15	25.650	3.597	8	9.569	2.445	31	4.033	1.437
-37	75.670	4.416	-14	24.510	3.551	9	9.195	2.395	32	3.894	1.401
-36	71.800	4.389	-13	23.420	3.504	10	8.839	2.346	33	3.760	1.366
-35	68.150	4.360	-12	22.390	3.456	11	8.494	2.296	34	3.631	1.332
-34	64.710	4.331	-11	21.410	3.408	12	8.166	2.248	35	3.508	1.298
-33	61.480	4.301	-10	20.480	3.360	13	7.852	2.199	36	3.390	1.266
-32	58.430	4.269	-9	19.580	3.310	14	7.552	2.151	37	3.276	1.234
-31	55.550	4.237	-8	18.730	3.260	15	7.266	2.104	38	3.167	1.203
-30	52.840	4.204	-7	17.920	3.209	16	6.992	2.057	39	3.062	1.172
-29	50.230	4.170	-6	17.160	3.159	17	6.731	2.012	40	2.962	1.143
-28	47.770	4.134	-5	16.430	3.108	18	6.481	1.966	41	2.864	1.113
-27	45.450	4.098	-4	15.740	3.057	19	6.242	1.922	42	2.770	1.085
-26	43.260	4.061	-3	15.080	3.006	20	6.013	1.878	43	2.680	1.057
-25	41.190	4.023	-2	14.450	2.955	21	5.792	1.834	44	2.593	1.030
-24	39.240	3.985	-1	13.860	2.904	22	5.581	1.791	45	2.510	1.003
-23	37.390	3.945	0	13.290	2.853	23	5.379	1.749	46	2.429	0.977
-22	35.650	3.905	1	12.740	2.801	24	5.185	1.707	47	2.352	0.952
-21	33.990	3.863	2	12.220	2.750	25	5.000	1.667	48	2.278	0.928
-20	32.430	3.822	3	11.720	2.698	26	4.821	1.626	49	2.206	0.904

4. Specifications

ELECTRICAL SPECIFICATIONS

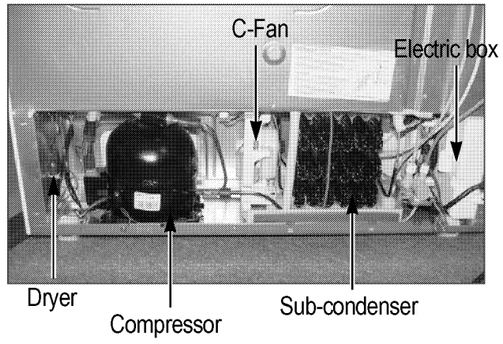
Defrost Control ..... From 24 to 32 hrs
Thermo-Bimetal ..... 12℃(off)/-5℃(on)
Defrost Thermistor(502AT) ..... 12℃ (off)
Maximum Current Leakage ..... 0.25 mA
Maximum Ground Path Resistance 0.1 Ohm
Energy Consumption ..... KWH/mo.

NO LOAD PERFORMANCE

Ambient Temperature	20℃	32℃
Refrigerator, ℃	1 ~ 7	1 ~ 7
Freezer, ℃	-14 ~ -25	-14 ~ -25
Run Time, %	< 40	< 60

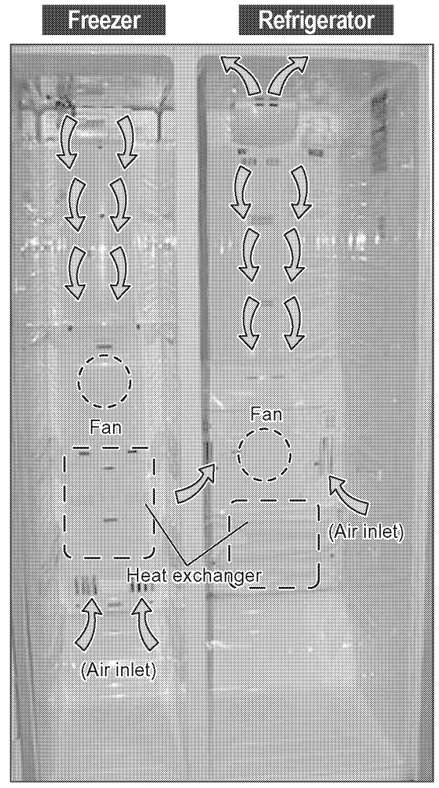
REFRIGERATION SYSTEM

Refrigerant Charge (R134a) 220g
Compressor (Refer to Component Partlist)
Compressor oil ..... Freol α-15
Capillary tube(Dia, Length) ø0.85, 3300mm
Dryer ..... Molecular Sieve XH-9



INSTALLATION

Clearance must be provided for air circulation
AT TOP 5cm
AT SIDES 0.25cm
AT REAR 5cm



MODELS

RS24, RS25**, RS26**, RS27****

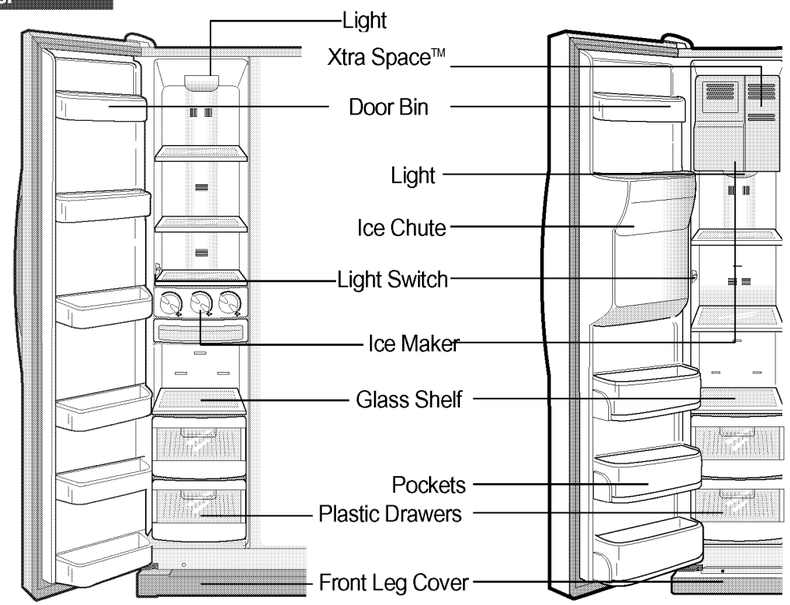
REPLACEMENT PARTS

Main Board(Good) DA41-00139A
Main Board(Better&Best) DA41-00107A
Thermistor(Freezer) DA32-10109W
Thermistor(Freezer Evaporator) DA32-00006A
Thermistor(Refrigerator) DA32-10105U
Thermistor(Refrigerator Evaporator) DA32-00006B
Thermistor(Ambient) DA32-10109V
Thermistor(CoolSelect Zone™) DA32-10109X
Thermistor(Ice-Maker) DA32-10108B
Thermo-Bimetal DA47-10160E
Relay DA35-10013Q
Overload Relay DA34-10003D
Run Capacitor (12㎌) 2501-001045
Fan-Motor(FRE) DA31-00020E
Fan-Motor(REF) ..... DA31-00002S(Good)
Fan-Motor(REF) ..... DA31-00020E(Better&Best)
Fan-Motor(Condenser) DA31-00020H
Thermal Fuse DA47-00095C

5. Interior Views and Dimensions

5-1) Shelves and Bins

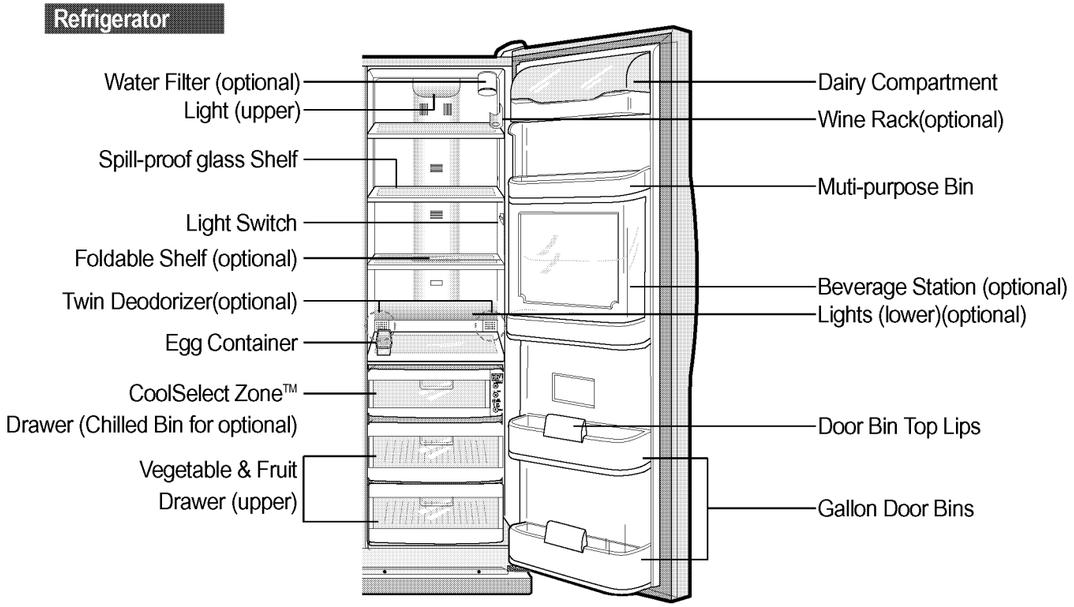
Freezer



RS 24/25/26/27
with Basic or Beverage Station™

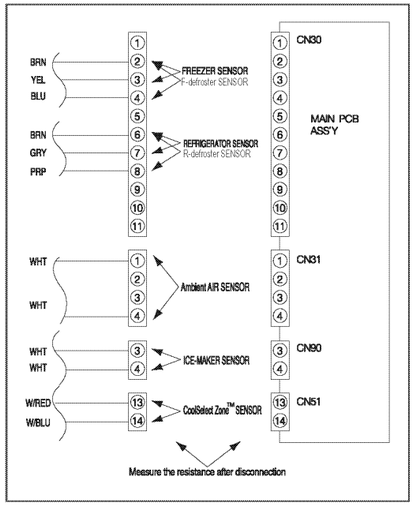
RS 24/25/26/27
with Dispenser or Beverage Station™

Refrigerator



Appendix Ⅰ (Reference for circuit diagnostics)

Ref. 4) Check sensors

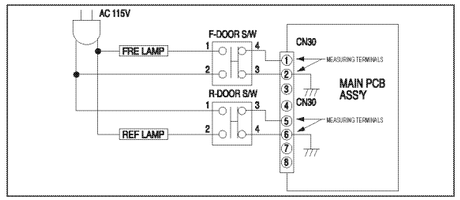


Disconnect the connector from the Main PCB, than measure the resistance of the following sensors.

1. Check the resistance the Freezer sensor cn30 between the no. 2 and 3.
2. Check the resistance the Fridge Room sensor cn30 between the no. 6 and 7.
3. Check the resistance the F Defrosting sensor cn30 between the no. 2 and 4.
4. Check the resistance the R Defrosting sensor cn30 between the no. 6 and 8.
5. Check the resistance between the no. ① and ④ the ambient Air sensor cn31.
6. Check the resistance between the no. ③ and ④ of the Ice-Maker sensor cn90.
7. Check the resistance between the no. ⑬ and ⑭ of the CoolSelect Zone™ sensor cn51.
8. Decide the sensor by comparing above resistances to the temperature of each sensor with the conversion table of sensor resistance and voltage from the reference temperature of Ref. 6 on this manual.

※ When the resistance is ∞ Ω or 0 Ω, check the connection of electric wire and sensorconnector.

Ref. 5) Check Door S/W



Check the condition in power on. Door S/W have 2 contact points. One contact point perceives the door open/close by DC 5V on the PCB. Another contact point turns on/off the Lamp.

(Lamp on the REF)

1. If the Lamp turns on correctly when the door is open, it is normal. Press the door s/w and check it the lamp turns off. If it doesn't work properly, check the door s/w on the refrigerator.

(Door open on the REF and the sensor part of the Main PCB)

1. Check the voltage between no. 5 "+" terminal and no.6 "-" terminal of CN30.
2. If 5V is checked when the door is open, it is normal.
3. If 0V is checked when the door is closed, it is normal. If it is not, check the door s/w and electric wire connection.

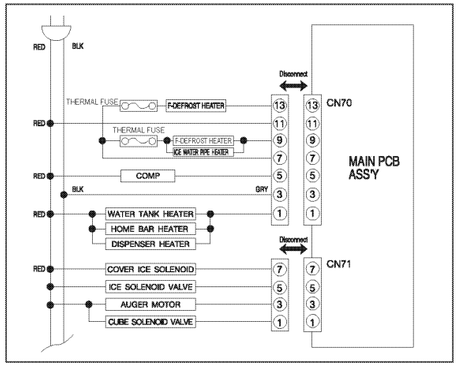
(Lamp on the FRE)

1. If the Lamp turns on correctly when the door is open, it is normal. Press the door s/w and check it the lamp turns off. If it doesn't work properly, check the door s/w on the FRE.

(Door open on the FRE and the sensor part of the Main PCB)

1. Check the voltage between no. 1 "+" terminal and no.2 "-" terminal of CN30.
2. If 5V is checked when the door is open, it is normal.
3. If 0V is checked when the door is closed, it is normal. If it is not, check the door s/w and electric wire connection.

Ref. 3) Check a load

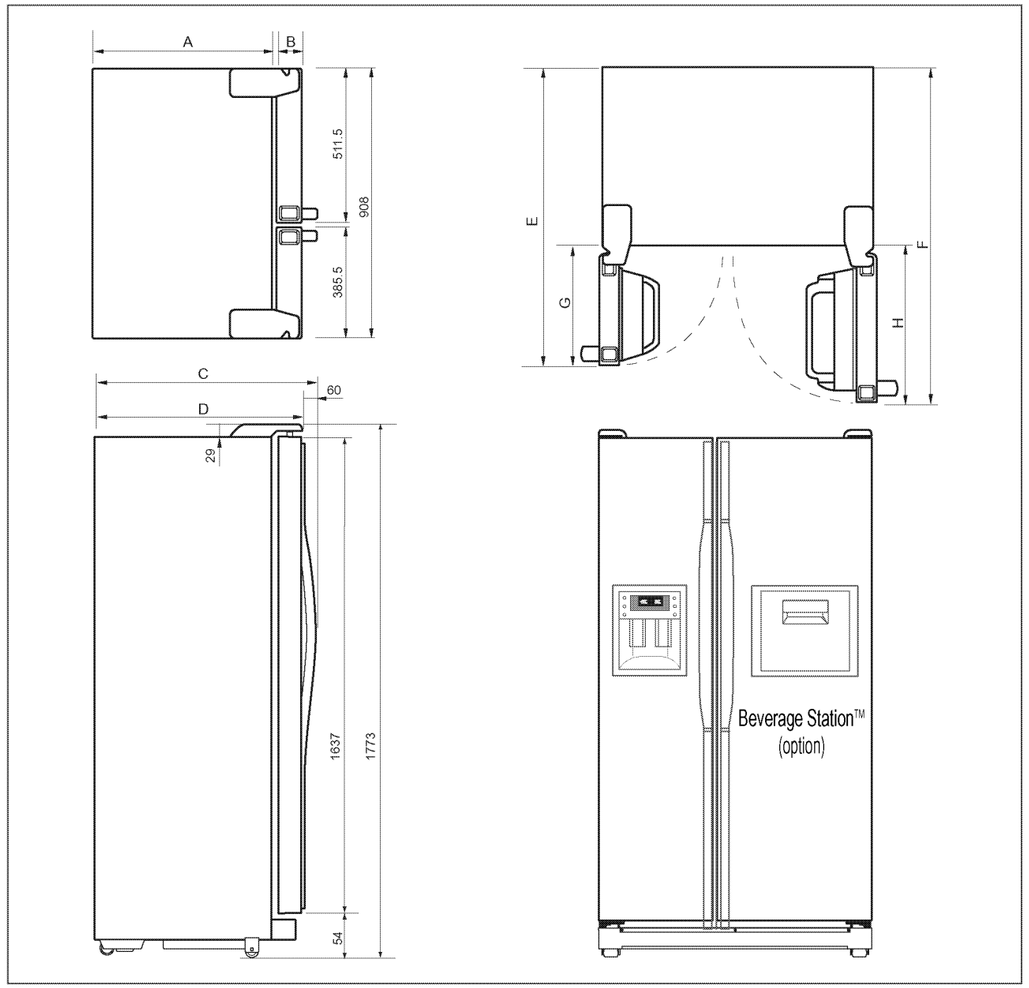


Unplug the powercord and disconnect the main PCB CN70 and CN71, the measure the follows :

1. As shown in table below, measure the resistance between terminals, check load trouble and wire connection error.
2. The diagram of circuit was drawn based on the maximum load. When a repair is needed, see the electric wiring diagram on the back of refrigerator to troubleshoot the corresponding model.
3. For safety, you must turn the power off.

Load	Measuremenr Termina l	Value	Contents
Freezer Def heater	between CN70 13 and CN70 7	0 Ω	Temperature fuse, heater, wires short trouble
		∞ Ω	Temperature fuse, heater, wires disconnection trouble
Ref. Def heater	between CN70 9 and CN70 7	0 Ω	Temperature fuse, heater, wires short trouble
		∞ Ω	Temperature fuse, heater, wires disconnection trouble
1) Beverage Station™ heater 2) Dispenser heater 3) Water tank heater	between CN70 11 and CN70 1	0 Ω	Heater, wires short trouble
		∞ Ω	Heater, wires, and connector disconnection
Cover Over Solenoid	between CN71 7 and CN70 11	0 Ω	Coil, wires short trouble
		∞ Ω	Coil, wires disconnection trouble
Ice Solenoid Valve	between CN71 5 and CN70 11	0 Ω	Coil, wires short trouble
		∞ Ω	Coil, wires disconnection trouble
Auger Motor	between CN71 3 and CN70 11	0 Ω	Coil, wires short trouble
		∞ Ω	Coil, wires disconnection trouble
Cube Solenoid Valve	between CN71 1 and CN70 11	0 Ω	Coil, wires short trouble
		∞ Ω	Coil, wires disconnection trouble

5-2) Dimensions of Refrigerator(RS24/25/26/27)

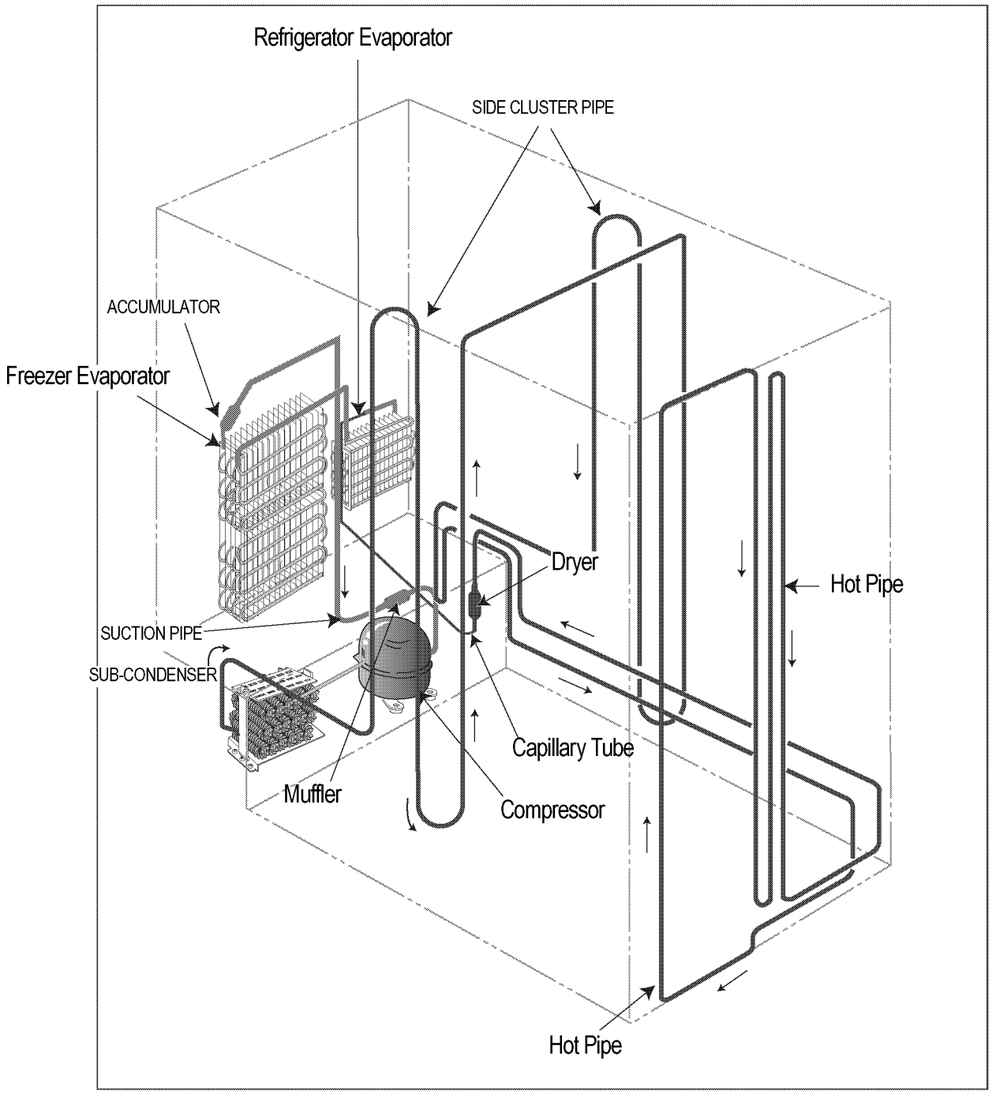


	A	B	C	D	E	F	G	H
RS24	710	50	864	774	1130.5	1255.5	420.5	545.5
RS25	710	85	899	809	1138	1263	428	553.0
RS26	760	50	914	824	1180.5	1305.3	420.5	545.3
RS27	760	85	949	859	1188	1313	4280	553.0

6. Refrigeration Cycle and Cool Air Circulation Route

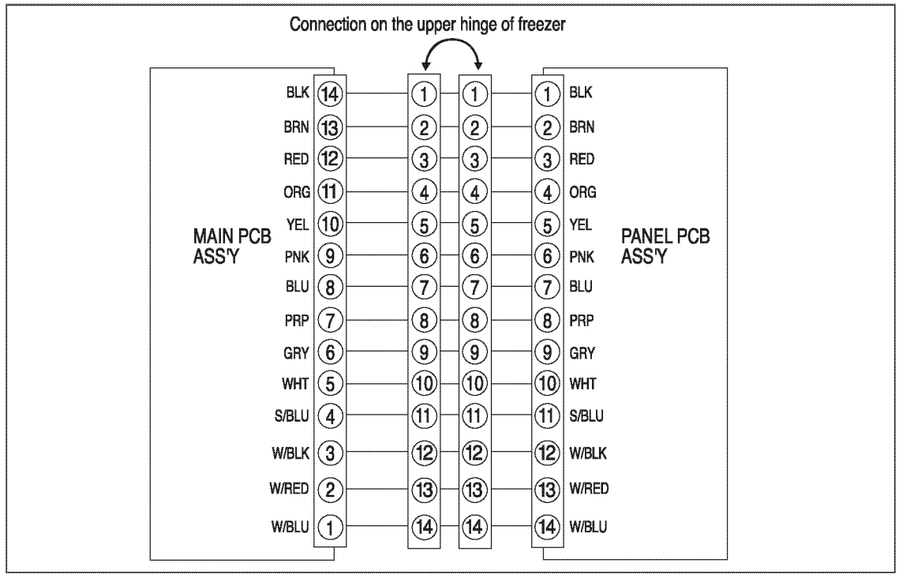
6-1) Refrigerant Route in Refrigeration cycle

Compressor → Sub-condenser → Side Cluster Pipe(FRE) → Side Cluster Pipe(REF) → Hot Pipe
→ Dryer → Capillary Tube → Refrigerator Evaporator → Freezer Evaporator → Suction Pipe → Compressor

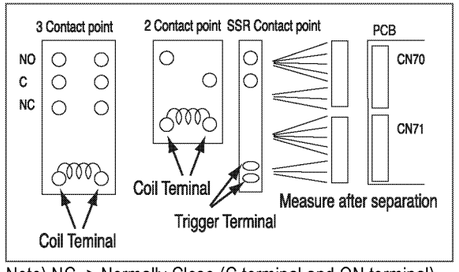


Appendix Ⅰ (Reference for circuit diagnostics)

Ref.1) Wire connector on the cabinet door.


Connection on the upper hinge of freezer
MAIN PCB ASS'Y
PANEL PCB ASS'Y
BLK 14 1 1 1 BLK
BRN 13 2 2 2 BRN
RED 12 3 3 3 RED
ORG 11 4 4 4 ORG
YEL 10 5 5 5 YEL
PNK 9 6 6 6 PNK
BLU 8 7 7 7 BLU
PRP 7 8 8 8 PRP
GRY 6 9 9 9 GRY
WHT 5 10 10 10 WHT
S/BLU 4 11 11 11 S/BLU
W/BLK 3 12 12 12 W/BLK
W/RED 2 13 13 13 W/RED
W/BLU 1 14 14 14 W/BLU

Ref. 2) How to check relay failure



Disconnect the connector of the main PCB CN70 and CN71, then check the follows :

1. Measure the voltage at both terminals of a coil and determine if the relay is working.
2. Measure the voltage at both terminals of a trigger and determine if SSR is working.
3. Measure the resistance at both terminals of a load contact, and determine if there is an error in voltages of coil and trigger.

Note) NC -> Normally Close (C terminal and ON terminal)
NO -> Normally Open (C terminal and Open terminal)
C -> Common Terminal

Div. of contact	Voltage at both terminal of coil and trigger	Both terminals of contact	Resistance value	Remark
3-contact terminal Relay	DC 12V (Working Condition)	Between C and NO	0 Ω (Short) -> Normal	
		Between C and NC	∞ Ω (Open) -> Normal	
	DC 0V (Stop Condition)	Between C and NO	∞ Ω (Open) -> Normal	
		Between C and NC	0 Ω (Short) -> Normal	
2-contact terminal Relay	~ DC 12V (load working condition)	Between both terminals of contact	0 Ω (Short) -> Normal	
	~DC 0V (load stop condition)	Between both terminals of contact	∞ Ω (Open) -> Normal	
SSR	~DC 12V (load working condition)	Between both terminals of contact	About 4-5 KΩ (Short) -> Normal	
	~DC 0V (load stop condition)	Between both terminals of contact	∞ Ω (Open) -> Normal	

12. Safety Instructions on Service

- Unplug the refrigerator before making any repair or any replacement.
  ⇨ Avoid the electric shock.

- Use the rated components on the replacement.
  ⇨ Check the correct model number, rated voltage, rated current, operating temperature and so on.

- On repair, be sure that the wires such as harness are bundled tightly and are not exposed by water.
  ⇨ Bundle wires tightly in order not to be detached by the external force.

- On repair, remove completely dust, particles or other things on housing parts, harness parts, and connectors.
  ⇨ Cleaning may prevent fire by tracking or short.

- Check if there is any trace indicating the infitration of water on electrical parts.
  ⇨ If there is kind of trace, change the related components or do the necessary action such as taping using the insulating tape.

- After repair, check the assembled state of parts.
  ⇨ It must be in the same assembled state when compared with the state before disassembly.

- Check the surrounding conditions of the installed refrigerator.
  ⇨ When the refrigerator is located at humid or wet place, or the installed state is unstable, change the location.

- If needed, do the ground.
  ⇨ Especially, if there is a possibility of the electric leakage, this appliance must be properly grounded.

- Do not allow consumers to use one outlet for several plugs.

- Check whether the power cord is placed under other appliance and so, damaged, worm-out squeezed.
  ⇨Repair immediately the defective power plug or outlet.
  ⇨Make sure that the power cord is not placed under other appliance or squeezed.

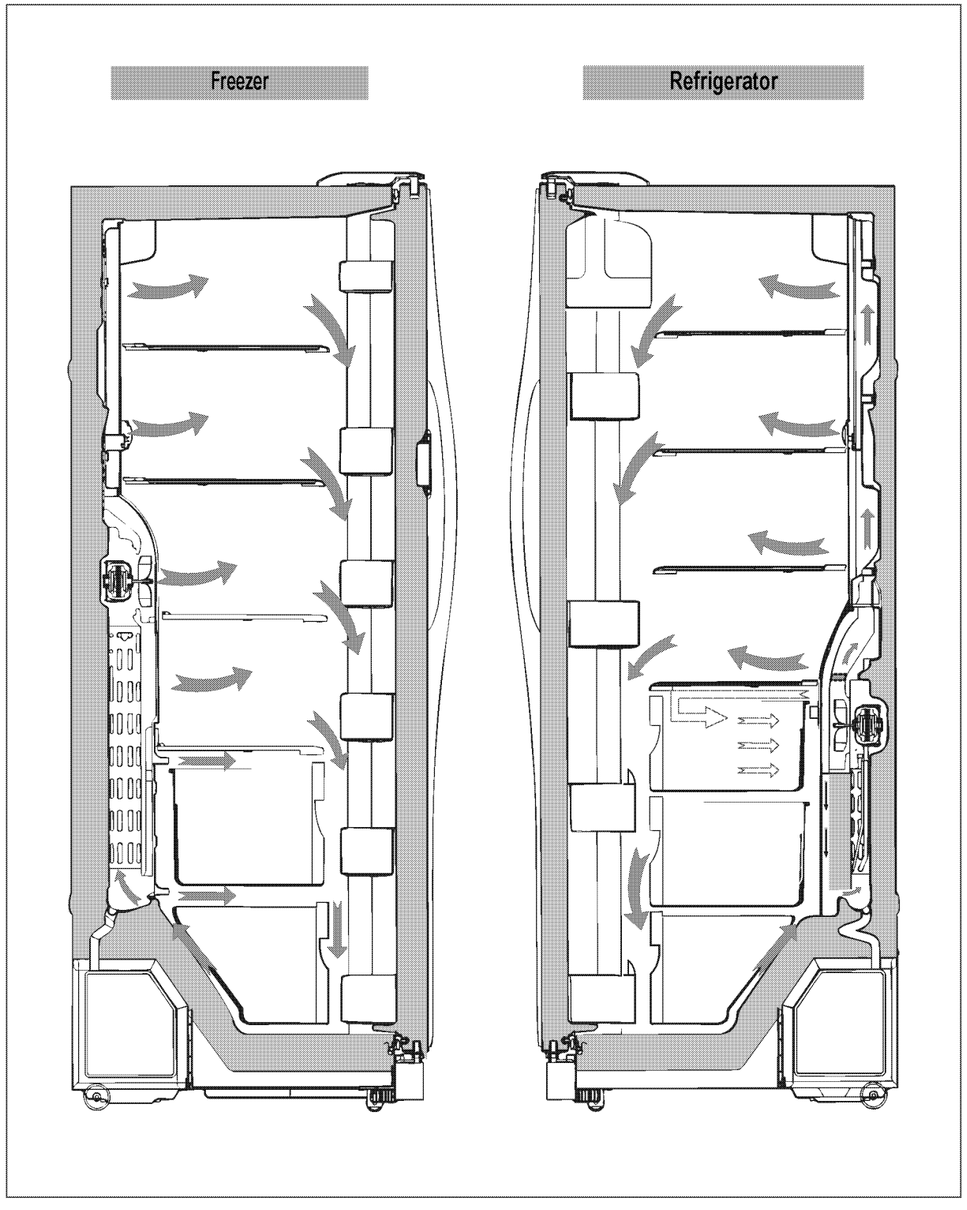
- Do not allow consumers to keep bottles or the likes in the Freezer or to keep foods in unstable position.

- Do not allow consumers to repair the appliance by themselves.

- Do not allow consumers to keep other chemicals except food.
  ⇨Medicines and other materials for research ; This appliance will not maintain the precisely constant temperature for them.
  ⇨Volatile material(Alcohol, Benzene, Ether, LP gas etc.) : possibility of explosion

Refrigeration Cycle and Cool Air Circulation Route

6-2) Cool Air Circulation



7. Mechanical Disassembly

7-1) Refrigerator Disassembly

Control Panel 14
Door Handle 14
Beverage Station™ 14
Door Gasket 14
Refrigerator Door Light Switch 15
Refrigerator Light 15
Tempered Glass Shelf 15
Plastic Drawers in Refrigerator 15
Gallon Door Bin 15
Water Filter 16
Evaporator Cover in the Refrigerator 16
Upper Ductwork 16
Evaporator Fan Motor 16
Evaporator in Refrigerator 17
Refrigerator Thermistor 17
CoolSelect Zone™ Thermistor 17

7-2) Freezer Disassembly

Door Bin in Freezer 18
Freezer Door Light Switch 18
Plastic(Wire) Drawer in Freezer 18
Freezer Shelf 18
Ice Dispenser & Ice Maker 18
Auger Motor Case 19
Freezer Light 20
Evaporator Cover in Freezer 20
Upper Ductwork 20
Evaporator Fan Motor 20
Evaporator in Freezer 21
Freezer Thermistor 21
Ambient Thermistor 21
Ice-Maker Thermistor 21

7-3) Machine Compartment Disassembly

Machine Compartment & Electrix Box 22
Water Solenoids 22
Condenser Fan 22
Sub-condenser 22

Illustrated Parts Catalog.

■ Parts List of Refrigerator Door

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA63-00825A	COVER-GUARD	*	*	*	*	*	*	
DA63-00836B	GUARD-DAIRY	*	*	*	*	*	*	
DA61-00343A	CASE-DOOR RECESS,ASSY				*	*	*	
DA61-00306A	CASE-DOOR RECESS,IN				*	*	*	
DA61-00308A	CASE-DOOR RECESS,OUT				*	*	*	
DA63-00826A	COVER DOOR-RECESS				*	*	*	
DA63-00991A	GROMMET-DOOR RECESS				*	*	*	

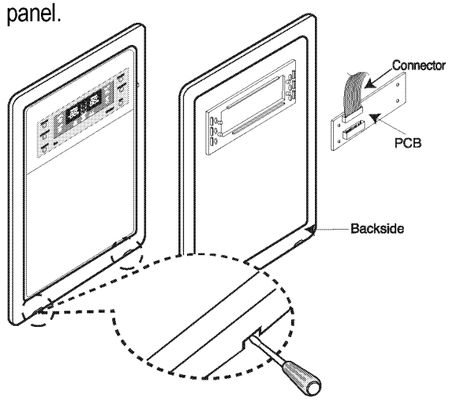
■ Parts List of Refrigerator Door

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA91-01626D	ASSY DOOR FOAM REF						*	SNOW WHITE(EUR)
DA91-01626E	ASSY DOOR FOAM REF		*					SNOW WHITE(XEM)
DA91-01626B	ASSY DOOR FOAM REF					*	*	SNOW WHITE(XEM)
DA91-01626S	ASSY DOOR FOAM REF						*	BLACK(XEM)
DA91-01627G	ASSY DOOR FOAM REF						*	SNOW WHITE(MIRROR)
DA91-01626U	ASSY DOOR FOAM REF						*	NOBLE STAINXEN)
DA97-00704A	HANDLE FRONT,ASSY	*	*	*	*	*	*	SNOW WHITE
DA97-00704B	HANDLE FRONT,ASSY	*	*	*	*	*	*	BLACK
DA64-00413B	HANDLE-MID FRONT	*	*	*	*	*	*	SNOW WHITE
DA64-00413C	HANDLE-MID FRONT	*	*	*	*	*	*	BLACK
DA64-00415B	HANDLE-TRIM CONNECT,LOW	*	*	*	*	*	*	SNOW WHITE
DA64-00415C	HANDLE-TRIM CONNECT,LOW	*	*	*	*	*	*	BLACK
DA64-00416B	HANDLE-TRIM CONNECT,UPP	*	*	*	*	*	*	SNOW WHITE
DA64-00416C	HANDLE-TRIM CONNECT,UPP	*	*	*	*	*	*	BLACK
DA97-00703A	HANDLE-MID REAR,ASSY	*	*	*	*	*	*	SNOW WHITE
DA97-00703B	HANDLE-MID REAR,ASSY	*	*	*	*	*	*	BLACK
6002-000227	SCREW-TAPPING	*	*	*	*	*	*	
DA61-00309A	REINF-HANDLE MID	*	*	*	*	*	*	
DA64-00414B	HANDLE-MID REAR	*	*	*	*	*	*	SNOW WHITE
DA64-00414C	HANDLE-MID REAR	*	*	*	*	*	*	BLACK
6002-000613	SCREW-TAPPING	*	*	*	*	*	*	
6002-000213	SCREW-TAPPING	*	*	*	*	*	*	
DA64-00418B	HANDLE-TRIM UPP	*	*	*	*	*	*	SNOW WHITE
DA64-00418C	HANDLE-TRIM UPP	*	*	*	*	*	*	BLACK
DA64-00417B	HANDLE-TRIM LOW	*	*	*	*	*	*	SNOW WHITE
DA64-00417C	HANDLE-TRIM LOW	*	*	*	*	*	*	BLACK
DA63-00828B	GUARD-REF,LOW	*	*	*	*	*	*	
DA97-00696B	GUARD-REF,LOW ASSY	*	*	*	*	*	*	
DA97-00696A	GUARD-REF,LOW ASSY	*	*	*	*	*	*	
DA71-00090A	GUIDE-BOTTLE REF	*	*	*	*	*	*	
DA63-00851A	COVER-BRACKET FRAME	*	*	*	*	*	*	
DA61-00430A	STOPPER DOOR	*	*	*	*	*	*	
DA66-90112C	CAM HINGE-RISER,LOW	*	*	*	*	*	*	
6001-000716	SCREW-MACHINE	*	*	*	*	*	*	
DA63-00850A	GASKET-HOME BAR OUT				*	*	*	SNOW WHITE
DA63-00850C	GASKET-HOME BAR OUT		*		*	*	*	BLACK
DA63-30232M	GASKET DOOR-REF ASSY	*	*	*	*	*	*	
DA63-00219B	COVER SWITCH-HOME BAR				*	*	*	
DA63-01100C	GASKET HOME BAR-S/W				*	*	*	
DA34-10121A	SWITCH-DOOR	*	*	*	*	*	*	
DA97-00547B	HOME BAR- ASSY				*	*	*	SNOW WHITE
DA97-00547C	HOME BAR- ASSY				*	*	*	BLACK
DA97-00697B	GUARD-DAIRY ASSY	*	*	*	*	*	*	

7-1) Refrigerator Disassembly

Control Panel

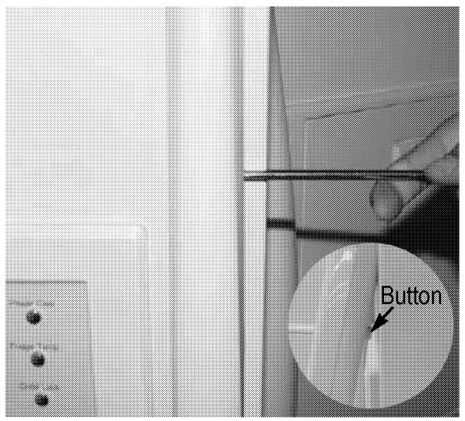
1. Insert a flat-blade screwdriver on the slot as shown, and unlock the tabs.
2. Disconnect the wire connector in the back of control panel.



Door Handle

The door handles allow access into the refrigerator and freezer. They are front mounted with Phillips head screws.

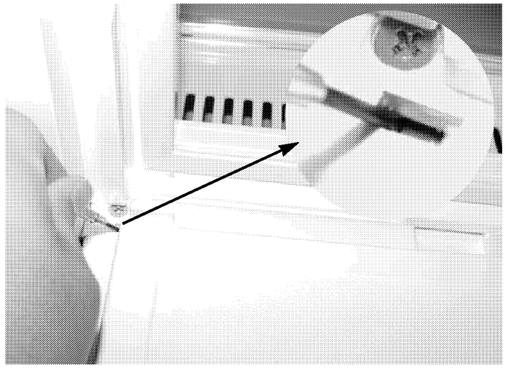
1. With a small flat-blade screwdriver, press the small button and pull handle cover out.
2. Remove the Phillips screws (8).
3. Lift the handle with an in and upward motion until it disengages the locking tabs. Pull the handle outward to remove it.



Beverage Station™

The beverage station™ allows access to the refrigerator without opening the refrigerator door.

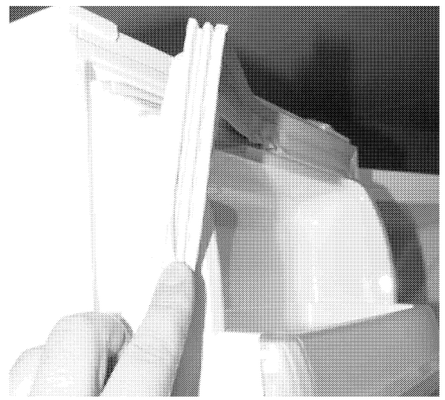
1. Open the door beverage station™
2. With a small flat-blade screwdriver,take out the rubbercap, then put it into the small hole and push the button inside.
3. Take off its door.



Door Gasket

The door gasket is a molded gasket set into a channel located in the door liner.

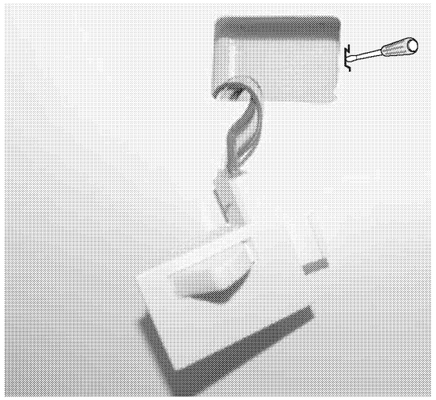
1. Open the door.
2. Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner.

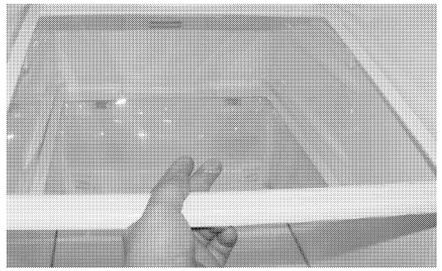


Refrigerator Door Light Switch

The refrigerator has a door light switch located in the upper right corner for the refrigerator.

1. Use a small flat-blade screwdriver to unlock the locking tab and pull the switch out until the wire connector is visible.

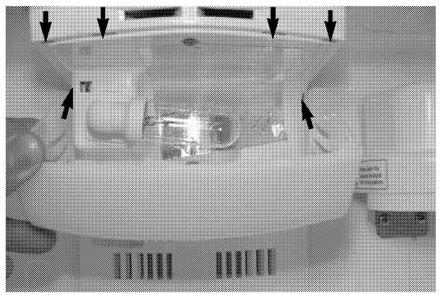




Refrigerator Light

The refrigerator lights are located in the upper and lower portion of refrigerator.

1. Pull out the screw cap and remove the screw.
2. To access the lower lights, pull out the screw cap and remove the screw.
3. Remove the lamp cover by unlocking the tabs and pulling the cover down.



Tempered Glass Shelf

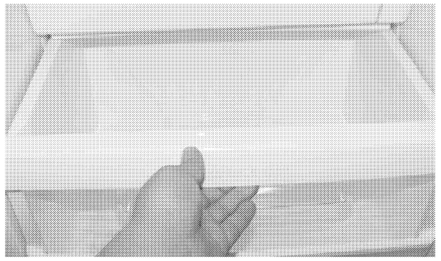
These shelves allow the storage of larger items and pull out for easy access.

1. Pull the shelf out as for as it goes.
2. Lift it up and remove it.

Plastic Drawers in Refrigerator

Drawers are designed for storage of fruits, vegetables, and deli items. The drawers are located in the lower portion of the refrigerator.

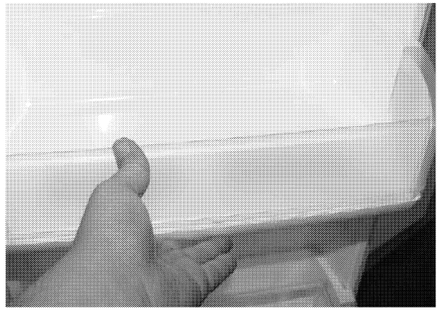
1. Pull out the drawer as far as it goes.
2. Tilt the drawer up and pull it out until it is removed.



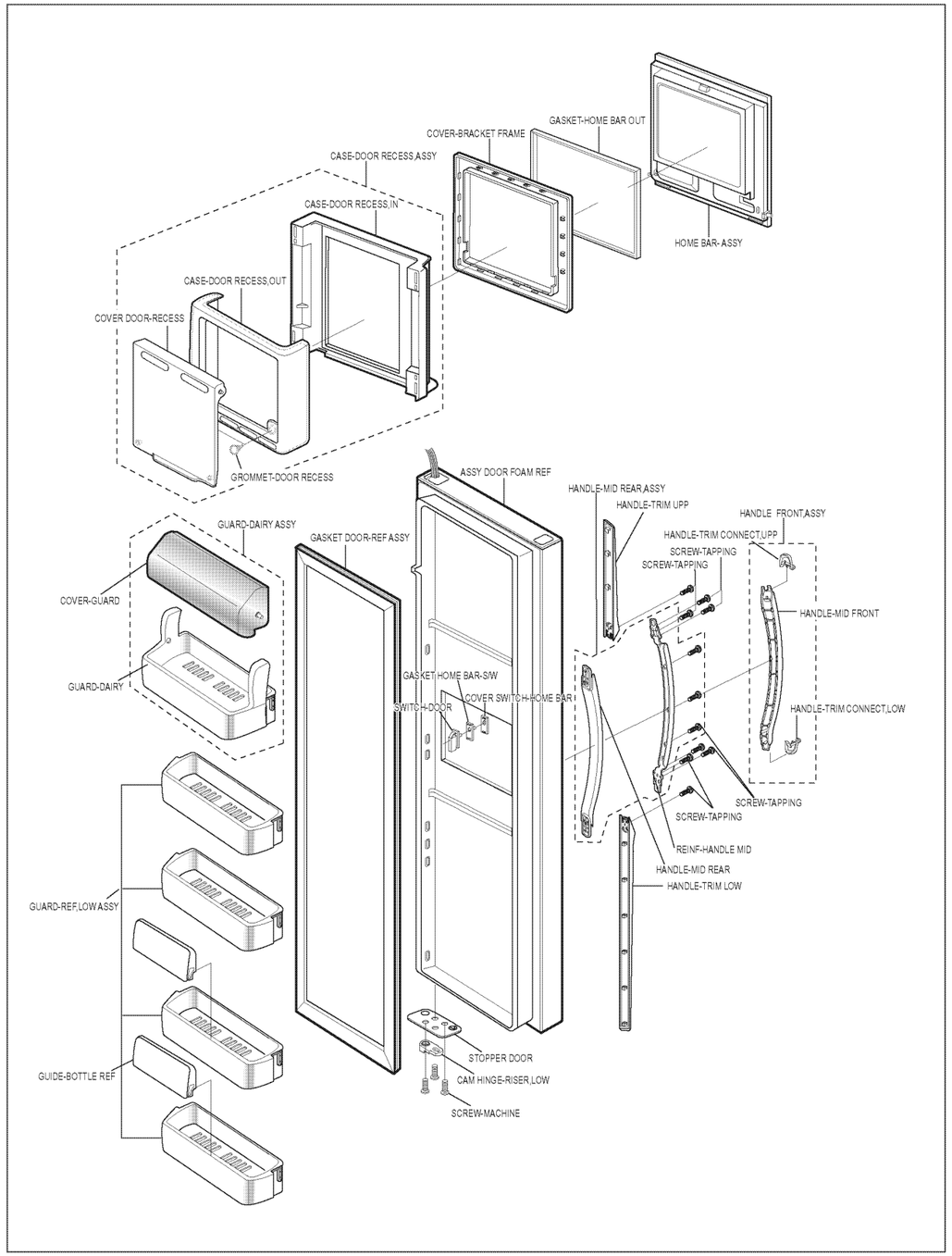
Gallon Door Bin

The door bins allow storage of perishable items.

1. Push the bin up and slide it out.



11-5) Disassembly of Refrigerator Door



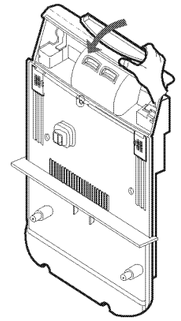
■ Parts List of Freezer Door

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA62-00058B	SEAL FOAM-LEX		*	*		*	*	
DA63-00844A	COVER-ICE ROUTE,A		*	*		*	*	
DA63-00845A	GASKET-COVER ICE ROUTE		*	*		*	*	SILICON
DA63-00846A	COVER-ICE ROUTE,B		*	*		*	*	
DA63-01047A	COVER-MICRO S/W							
DA63-00843E	TRAY-DISPENSER		*	*		*	*	SNOW-WHITE
DA63-00843F	TRAY-DISPENSER		*	*		*	*	BLACK
DA61-00316A	SUPPORT-TIME DELAY		*	*		*	*	
DA61-00319A	BRACKET-TUBE PIPE							
DA97-00545C	LEVER-DISP ICE ASSY		*	*		*	*	SNOW-WHITE
DA97-00545D	LEVER-DISP ICE ASSY		*	*		*	*	BLACK
DA61-00337A	SPRING ETC-ICE LEVER DISP		*	*		*	*	
DA66-00196C	LEVER-DISP ICE		*	*		*	*	SNOW-WHITE
DA66-00196D	LEVER-DISP ICE		*	*		*	*	BLACK
DA66-00156B	LEVER-DISP SUB		*	*		*	*	
DA97-00546C	LEVER-DISP WATER ASSY		*	*		*	*	SNOW-WHITE
DA97-00546D	LEVER-DISP WATER ASSY		*	*		*	*	BLACK
DA61-00338A	SPRING ETC-WATER LEVER DISP		*	*		*	*	
DA66-00197C	LEVER-DISP WATER		*	*		*	*	SNOW-WHITE
DA66-00197D	LEVER-DISP WATER		*	*		*	*	BLACK
DA74-40154F	VALVE SOLENOID		*	*		*	*	110-127V
DA74-40151F	VALVE SOLENOID		*	*		*	*	220~230V
DA97-00457E	ASSY COVER-DISP		*	*		*	*	SNOW-WHITE
DA97-00457F	ASSY COVER-DISP		*	*		*	*	SNOW-WHITE
DA97-00457H	ASSY COVER-DISP		*	*		*	*	BLACK
6002-000466	SCREW-TAPPING	*	*	*	*	*	*	
DA02-10013B	TAPE ETC-AL	*	*	*	*	*	*	
DA41-00105D	PBA PANEL		*	*		*	*	
DA41-00105C	PBA PANEL		*	*		*	*	
DA63-00815B	COVER DISPENSER		*	*		*	*	SNOW-WHITE
DA63-00815C	COVER DISPENSER		*	*		*	*	BLACK
DA63-00994A	COVER-LAMP DISPENSER		*	*		*	*	
DA63-01284C	COVER-CONTROL DISP		*	*		*	*	SNOW-WHITE
DA63-01284D	COVER-CONTROL DISP		*	*		*	*	BLACK
DA64-00426B	KNOB-TOUCH	*	*	*	*	*	*	
DA72-00427B	SEAL-CUTT FOAM-LEX	*	*	*	*	*	*	
DA63-00895B	GUARD-FRE UPP	*	*	*	*	*	*	
DA97-00695A	ASSY GUARD-FRE UPP	*	*	*	*	*	*	
DA63-00827B	GUARD-FRE,LOW	*	*	*	*	*	*	
DA97-00694B	ASSY GUARD-FRE,LOW						*	

Water Filter

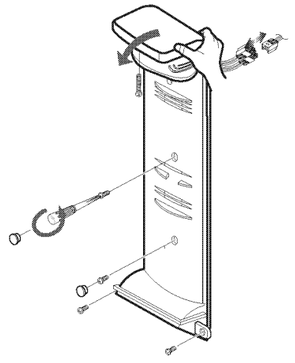
The water filter is located in the upper right-hand corner of the refrigerator. The water filter filters water for the ice maker and the water dispenser.

1. Turn the water filter 1/2 turn counterclockwise and pull it down.
2. To install the filter, align the indication mark (unlock position) and push it up while turning 1/2 turn clockwise until the lock position is aligned. Do not over tighten.



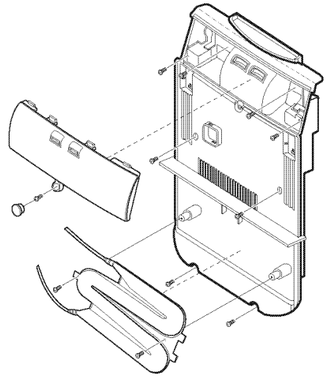
Upper Ductwork

1. Remove the screw caps (2) and screws (5).
2. Slide the upper fan ductwork out while disconnecting the wire connector(lamp and thermistor).



Evaporator Cover in the Refrigerator

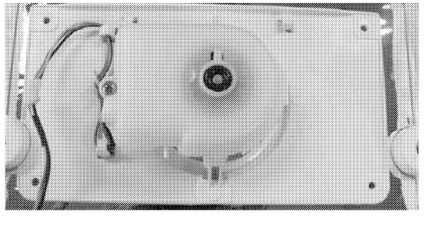
1. Pull out the screw cap and remove the screw.
2. Remove the lamp cover by unlocking the tabs and pulling the cover down.
3. Remove the water tank from the evaporator cover by unscrewing the screws (2).
4. Remove the screws (6) at the evaporator cover and the two fixed screws of the wire connector cover.
5. Take off motor and lamp wire connector located on the upper liner.
6. Remove the duckwork of the evaporator fan in the direction of the arrow as shown.



Evaporator Fan Motor

The evaporator fan is located in the middle rear of the freezer. This fan circulates cold air in the freezer.

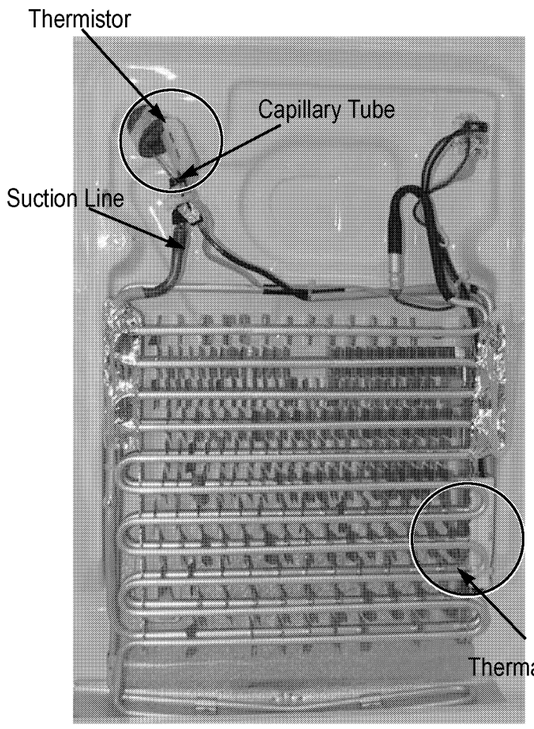
1. Remove screws (4) located at the four corners of the fan bracket.
2. Take the fan motor assembly off.



Evaporator in Refrigerator

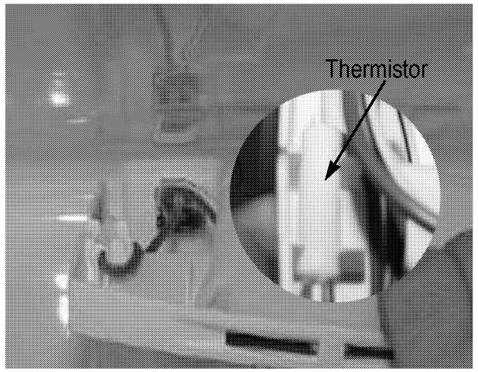
Evaporator is located in the bottom of refrigerator.

1. Take off the ductwork in refrigerator.
2. Disconnect the wire connector.(Heater and Thermistor)
3. Desolder the capillary tube and the suction line from the evaporator.
4. Remove the evaporator.
5. With a file, score the capillary tube just upstream of the soldered point. Break off the soldered section to help prevent solder from plugging the tube during soldering.
6. Place a new evaporator and braze the suction and capillary tube to evaporator using silver solder.
7. Install a replacement dryer.
8. Evacuate and recharge the system using reasonable procedures.



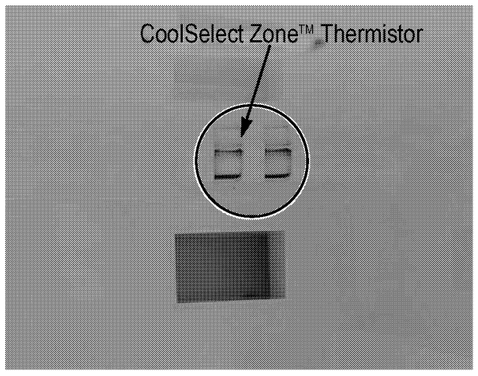
Refrigerator Thermistor

The refrigerator thermistor is located inside of the upper light cover of the refrigerator.



CoolSelect Zone™ Thermistor

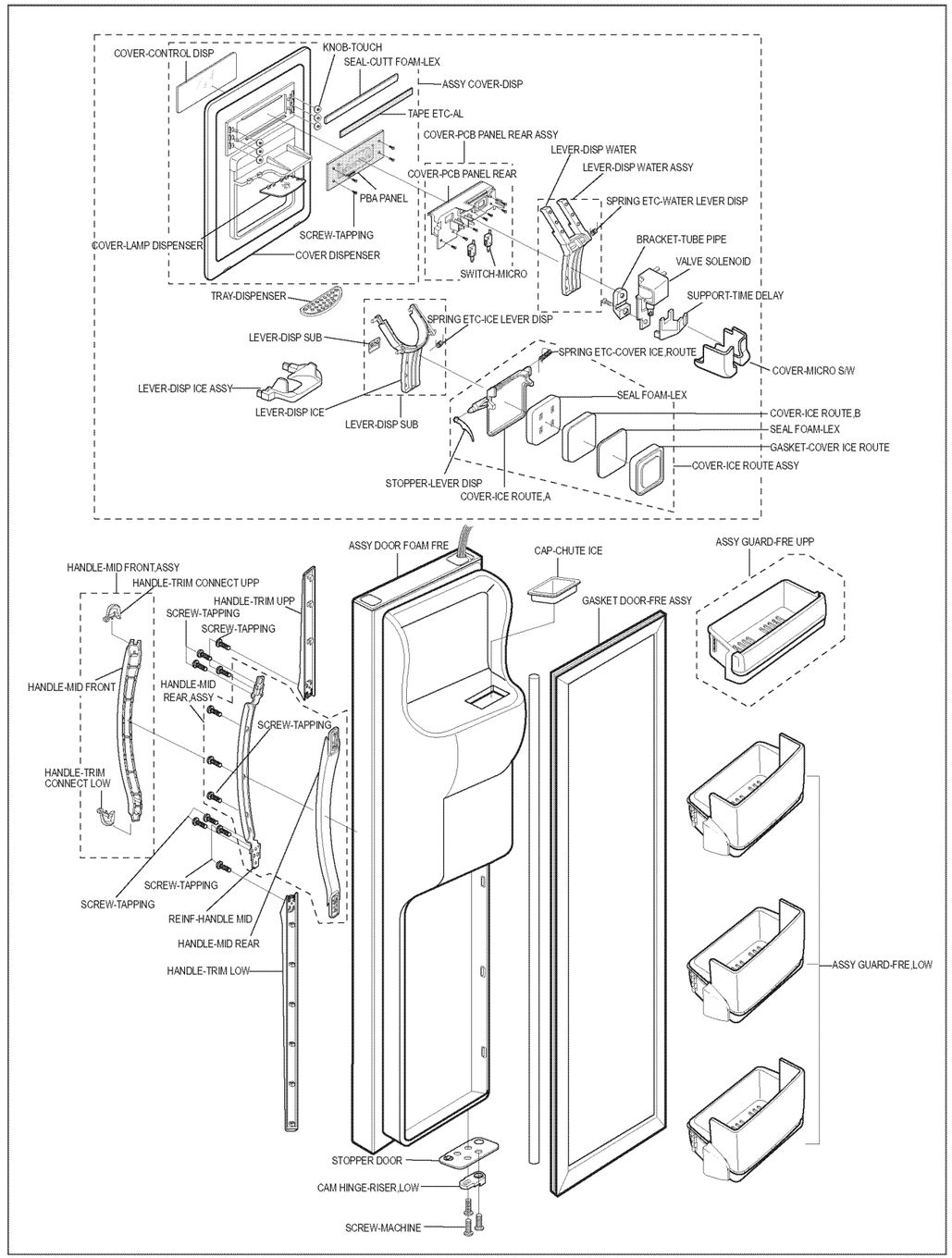
The CoolSelect Zone™ thermistor is located outside the back of CoolSelect Zone™ drawer. The temperature signal sends the micro-processor.



■ Parts List of Freezer Door

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA91-01622D	ASSY DOOR FOAM FRE						*	SNOW-WHITE (EUR)
DA91-01622B	ASSY DOOR FOAM FRE		*			*	*	SNOW-WHITE (XEM)
DA91-01622S	ASSY DOOR FOAM FRE						*	BLACK(XEM)
DA91-01624S	ASSY DOOR FOAM FRE						*	SNOW-WHITE (MIRROR)
DA91-01622U	ASSY DOOR FOAM FRE						*	NOBLE STAIN(XEN)
DA97-00704A	HANDLE-MID FRONT,ASSY	*	*	*	*	*	*	SNOW-WHITE
DA97-00704B	HANDLE-MID FRONT,ASSY	*	*	*	*	*	*	BLACK
DA64-00413B	HANDLE-MID FRONT	*	*	*	*	*	*	SNOW-WHITE
DA64-00413C	HANDLE-MID FRONT	*	*	*	*	*	*	BLACK
DA64-00415B	HANDLE-TRIM CONNECT LOW	*	*	*	*	*	*	SNOW-WHITE
DA64-00415C	HANDLE-TRIM CONNECT LOW	*	*	*	*	*	*	BLACK
DA64-00416B	HANDLE-TRIM CONNECT UPP	*	*	*	*	*	*	SNOW-WHITE
DA64-00417C	HANDLE-TRIM CONNECT UPP	*	*	*	*	*	*	BLACK
DA97-00703A	HANDLE-MID REAR,ASSY	*	*	*	*	*	*	SNOW-WHITE
DA97-00703B	HANDLE-MID REAR,ASSY	*	*	*	*	*	*	BLACK
6002-000227	SCREW-TAPPING	*	*	*	*	*	*	
DA61-00309A	REINF-HANDLE MID	*	*	*	*	*	*	
DA64-00414B	HANDLE-MID REAR	*	*	*	*	*	*	SNOW-WHITE
DA64-00414C	HANDLE-MID REAR	*	*	*	*	*	*	BLACK
6002-000613	SCREW-TAPPING	*	*	*	*	*	*	
6002-000213	SCREW-TAPPING	*	*	*	*	*	*	
DA64-00418B	HANDLE-TRIM UPP	*	*	*	*	*	*	SNOW-WHITE
DA64-00418C	HANDLE-TRIM UPP	*	*	*	*	*	*	BLACK
DA64-00417B	HANDLE-TRIM LOW	*	*	*	*	*	*	SNOW-WHITE
DA64-00417C	HANDLE-TRIM LOW	*	*	*	*	*	*	BLACK
DA67-00513A	CAP-CHUTE ICE		*	*		*	*	
DA63-30231M	GASKET DOOR-FRE ASSY	*	*	*	*	*	*	
DA61-00430A	STOPPER DOOR	*	*	*	*	*	*	
DA66-90112C	CAM HINGE-RISER,LOW	*	*	*	*	*	*	
6001-000716	SCREW-MACHINE	*	*	*	*	*	*	
DA61-00670A	GUIDE-LEVER DISP		*	*		*	*	
DA97-00409A	COVER-PCB PANEL REAR ASSY		*	*		*	*	
DA34-00011A	SWITCH-MICRO		*	*		*	*	250V,15A
DA63-00816A	COVER-PCB PANEL REAR		*	*		*	*	
DA63-00863A	COVER-ICE ROUTE ASSY		*	*		*	*	
DA61-00320A	STOPPER-LEVER DISP		*	*		*	*	
DA61-00565A	SPRING ETC-COVER ICE,ROUTE		*	*		*	*	
DA62-00058A	SEAL FOAM-LEX		*	*		*	*	

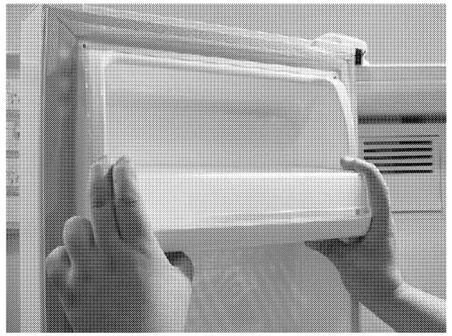
11-4) Disassembly of Freeze Door

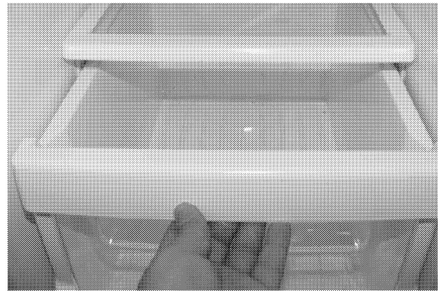


7-2) Freezer Disassembly

Door Bin in Freezer

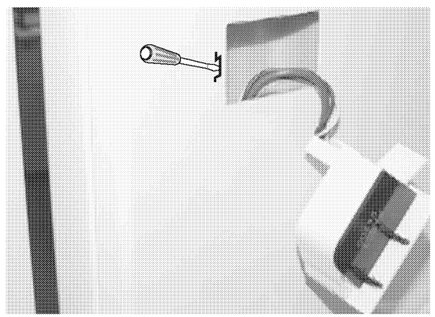
The door bins allow storage of perishable items.
1. Push the bin up and slide it out.





Freezer Door Light Switch

This switch is located in the left-hand portion of the freezer and sends a signal to the processor.
1. With a small flat-blade screwdriver, unlock the locking tabs and pull the switch out until the wire connector is visible.
2. Disconnect the wire connector and remove the switch.

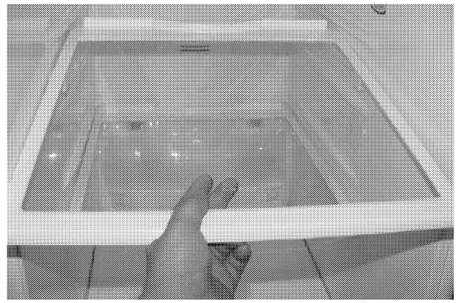


Plastic (Wire) Drawer in Freezer

Drawers are designed for storage of meat and dry foods. The drawers are located in the lower portion of the freezer.
1. Pull out the drawer as far as it goes.
2. Tilt the drawer up and pull it out until it is removed.

Freezer Shelf

The shelves slide out for easy access for frozen items.
1. Slide the shelf out until it reaches its stop.
2. Tilt down and slide it out of the compartment.

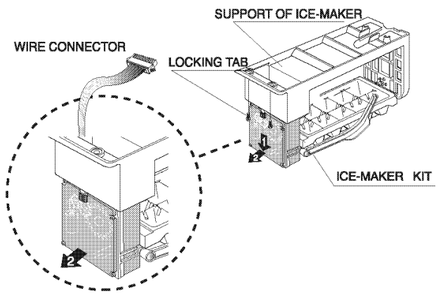


Ice Dispenser & Ice Maker

The ice dispenser is located in the upper portion of the freezer. This assembly stores ice made by the icemaker and dispenses ice.
1. Lift the ice bucket up ① and slide out the ice dispenser assembly ②.

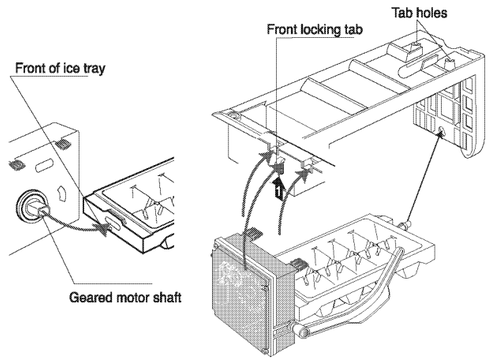
The ice maker is located inside of the ice dispenser assembly.

1. Remove ice maker support screws (2), and slide out.
2. Disconnect the ice maker wire connector.
3. Unlock the locking tabs to separate the ice maker kit.



In order to assemble the icemaker kit.

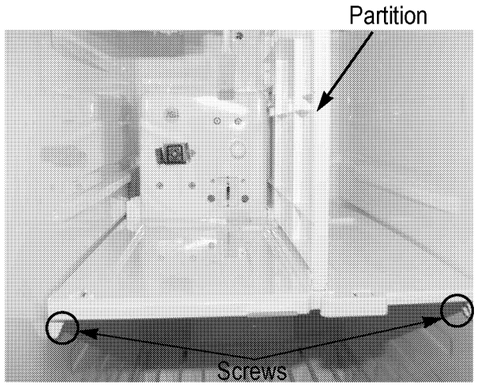
1. Assemble the geared motor shaft and the front of ice tray.
2. Lift the front locking tab and assemble the ice maker kit.
3. Connect the ice maker wire connector.
4. Match the tab holes and tabs(2) located on the top of the liner, and slide the ice maker in.
5. Tighten the screws (2) of the ice maker support.



Auger Motor Case

This shelf is designed to support the ice maker & ice dispensed and Xtra Space™.

1. Remove the Xtra Space™ cover to push it down near the partition.
2. Slide the partition out.
3. Remove the screws (2) on the bottom front of the case.
4. Slide out the case while disconnecting the wire connect.



■ Parts List of Cabinet

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA61-20128A	SPRING ETC-FAN	*	*	*	*	*	*	
DA63-10352A	COVER-RELAY	*	*	*	*	*	*	
DA34-10003D	RELAY PROTECTOR O/L	*	*	*	*	*	*	
DA35-10013Q	RELAY-PTC	*	*	*	*	*	*	
DA39-00084D	WIRE-HARNESS RELAY	*	*	*	*	*	*	
DA39-10165E	CBF-ASSY	*	*	*	*	*	*	
MK183CL2U/EH1	COMPRESSOR	*	*	*	*	*	*	115V
MK183PL2U/EH1	COMPRESSOR	*	*	*	*	*	*	127V
DK190QL2U/E01	COMPRESSOR	*	*	*	*	*	*	230V/50 Hz
DK190KT2U/E01	COMPRESSOR	*	*	*	*	*	*	220V/50 Hz
SK190HL2U/E01	COMPRESSOR	*	*	*	*	*	*	220V/60 Hz
DA63-40004A	GROMMET-COMP	*	*	*	*	*	*	
DA60-20008A	BOLT-HEX	*	*	*	*	*	*	
DA60-10107A	SCREW-EARTH	*	*	*	*	*	*	
DA60-10004A	SCREW-TAP TITE	*	*	*	*	*	*	
DA61-00261B	CASE-PCB PANEL	*	*	*	*	*	*	
DA71-00155B	FIXER-MAIN PCB	*	*	*	*	*	*	
DA41-00104E	PBA-MAIN	*	*	*	*	*	*	
DA41-00134A	PBA-MAIN	*	*	*	*	*	*	
2501-001045	C-OIL	*	*	*	*	*	*	12uF,250V
DA27-00002D	COIL-NOISE FILTER	*	*	*	*	*	*	
DA63-00783B	COVER-PCB PANEL	*	*	*	*	*	*	
DA62-20001P	TUBE-PVC	*	*	*	*	*	*	
DA97-00555A	CHASSIS-COMP	*	*	*	*	*	*	
DA62-00131B	ASSY-PIPE SUCTION	*	*	*	*	*	*	
DA73-30102B	DRYER-ASSY	*	*	*	*	*	*	
DA63-01135A	COVER-COMP	*	*	*	*	*	*	
DA63-00822D	COVER-LEG FRONT	*	*	*	*	*	*	SNOW-WHITE
DA63-00822E	COVER-LEG FRONT	*	*	*	*	*	*	BLACK
6002-000213	SCREW-TAPPING	*	*	*	*	*	*	
DA63-01291A	GROMMET-PIPE WATER,FILL IN	*	*	*	*	*	*	
DA63-01275A	COVER-TUBE WATER		*	*	*	*		SNOW-WHITE
DA63-01275B	COVER-TUBE WATER		*	*	*	*		BLACK
DA97-00708A	ASSY-PIPE WATER		*	*	*	*		
DA60-30104A	NUT-WATER LINE		*	*	*	*		
DA60-30105A	NUT-WATER LINE		*	*	*	*		
DA62-00224A	VALVE-CHECK		*	*	*	*		
DA71-20208A	FIXER-VALVE WATER		*	*	*	*		
DA71-20207A	FIXER-VALVE WATER		*	*	*	*		
DA74-40149D	VALVE-WATER ASSY		*	*	*	*		115~127V, 110V
DA74-40149C	VALVE-WATER ASSY		*	*	*	*		220~230V
6502-000112	CABLE-CLAMP		*	*	*	*		

■ Parts List of Cabinet

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA63-01289D	COVER-HINGE UPP,L	*	*	*	*	*	*	SNOW-WHITE
DA63-01289E	COVER-HINGE UPP,L	*	*	*	*	*	*	BLACK
DA97-00706A	ASSY-HINGE UPP,L	*	*	*	*	*	*	
DA61-00421A	HINGE-UPP,L	*	*	*	*	*	*	
DA97-01288D	COVER-HINGE UPP,R	*	*	*	*	*	*	SNOW-WHITE
DA97-01288E	COVER-HINGE UPP,R	*	*	*	*	*	*	BLACK
DA97-00439A	ASSY-HINGE UPP,R	*	*	*	*	*	*	
DA61-00420A	HINGE-UPP,R	*	*	*	*	*	*	
DA63-50192C	SHIM-HINGE UPP	*	*	*	*	*	*	
6009-001255	SCREW-HEX	*	*	*	*	*	*	
DA60-10122C	SCREW-TAP TITE	*	*	*	*	*	*	
DA61-00056A	CASTER-FRONT ASSY	*	*	*	*	*	*	
DA61-30102A	FOOT-FRONT	*	*	*	*	*	*	
DA74-00093A	DUCT-CABI LOW	*	*	*	*	*	*	
DA61-00459A	BRACKET-HINGE LOW	*	*	*	*	*	*	
DA97-00165A	ASSY-HINGE LOW,L	*	*	*	*	*	*	
6002-000485	SCREW-TAPPING	*	*	*	*	*	*	
6011-001442	BOLT-SOCKET	*	*	*	*	*	*	
6021-001125	NUT-HEXAGON	*	*	*	*	*	*	
DA61-00096G	HINGE-LOW,L	*	*	*	*	*	*	
DA63-50207C	SHIM HINGE-LOW	*	*	*	*	*	*	
DA66-90113B	CAM HINGE-RISER,UPP	*	*	*	*	*	*	
DA97-00166B	ASSY-HINGE LOW,R	*	*	*	*	*	*	
6002-000485	SCREW-TAPPING	*	*	*	*	*	*	
6011-001442	BOLT-SOCKET	*	*	*	*	*	*	
6021-001125	NUT-HEXAGON	*	*	*	*	*	*	
DA61-00096G	HINGE-LOW,L	*	*	*	*	*	*	
DA63-50207C	SHIM HINGE-LOW	*	*	*	*	*	*	
DA66-90113B	CAM HINGE-RISER,UPP	*	*	*	*	*	*	
DA97-00367D	ASSY-TRAY DRAIN,WATER	*	*	*	*	*	*	
6002-000480	SCREW-TAPPING	*	*	*	*	*	*	
6009-001252	SCREW-SPECIAL	*	*	*	*	*	*	
6501-000122	CABLE-TIE	*	*	*	*	*	*	
DA31-00020H	MOTOR-BLDC	*	*	*	*	*	*	12V
DA96-00042A	WIRE-HARNESS MOTOR	*	*	*	*	*	*	
DA61-00415A	SUPT-CIRCUIT MOTOR	*	*	*	*	*	*	
DA63-00713A	COVER-MOTOR	*	*	*	*	*	*	
DA63-01146A	GROMMET-MOTOR	*	*	*	*	*	*	
DA63-40167A	GROMMET-COVER CHILL	*	*	*	*	*	*	
DA66-40167A	TRAY-DRAIN WATER	*	*	*	*	*	*	
DA72-00176A	SEAL-COND	*	*	*	*	*	*	
DA63-40171B	GROMMET-SUCT PIPE	*	*	*	*	*	*	
DA97-00259A	ASSY-PIPE SPRIAL COND	*	*	*	*	*	*	
DA31-00010D	FAN-ASSY	*	*	*	*	*	*	
DA31-00105C	FAN-TURBO	*	*	*	*	*	*	

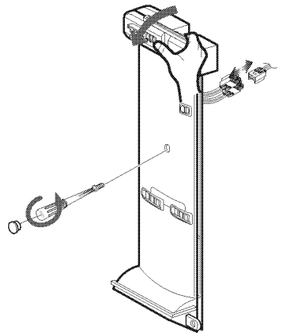
Freezer Light

The freezer light is located in the bottom of the auger motor case. The light is covered by an opaque cover.

1. Remove the screw and the light cover.

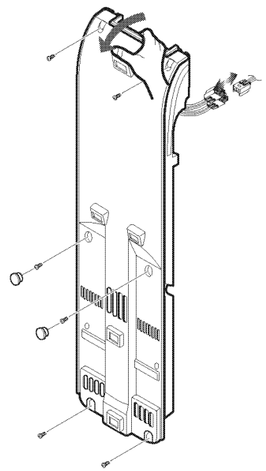
Upper Ductwork

1. Remove the screw cap and screw.
2. Slide the upper fan ductwork out while disconnecting the wire connector (Lamp and Thermistor).



Evaporator Cover in Freezer

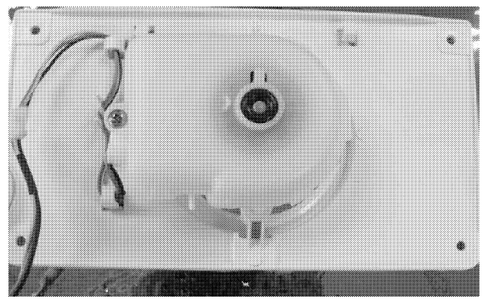
1. Pull out the screw caps and remove screws (6).
2. Remove the ductwork of the evaporator fan in the direction of the arrow as shown.
3. Disconnect the wire connector.



Evaporator Fan Motor

The evaporator fan is located in the lower rear of refrigerator. This fan circulates cold air in the refrigerator.

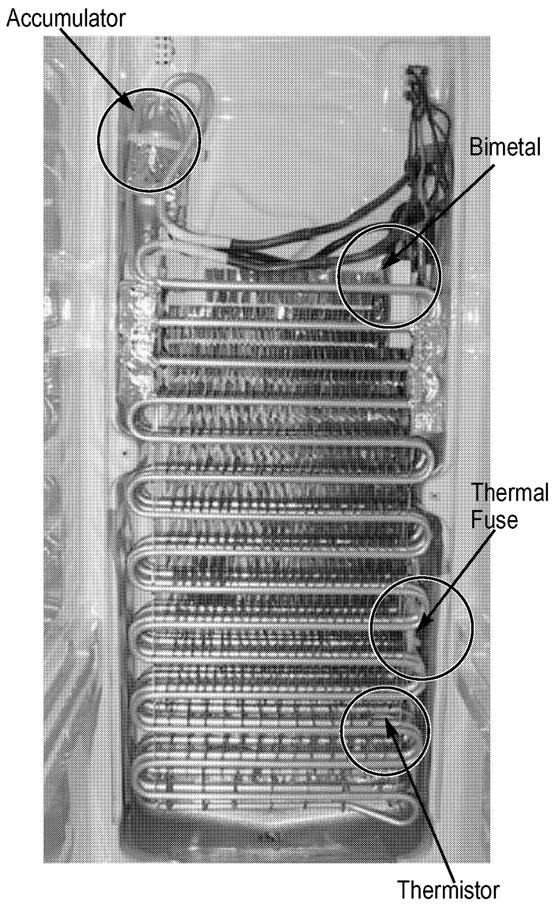
1. Remove screw(4) located at the four corners of the fan bracket.
2. Take the fan motor assembly off.



Evaporator in Freezer

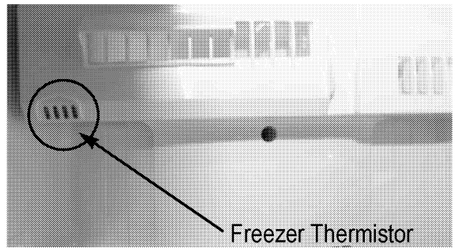
Evaporator is located in the bottom of freezer to produce cold air driven across the evaporator coils.

1. Take off the ductwork in Freezer.
2. Disconnect the wire connector (Heater, Bimental, and Thermistor).
3. Desolder the inlet and outlet tubes.
4. Remove the evaporator.
5. Take the same steps to seal the system as mentioned earlier.



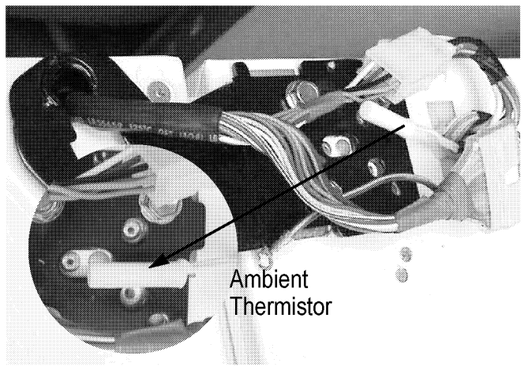
Freezer Thermistor

The freezer thermistor is located at the top left of freezer vent. It sends temperature signals to the micro-processor.



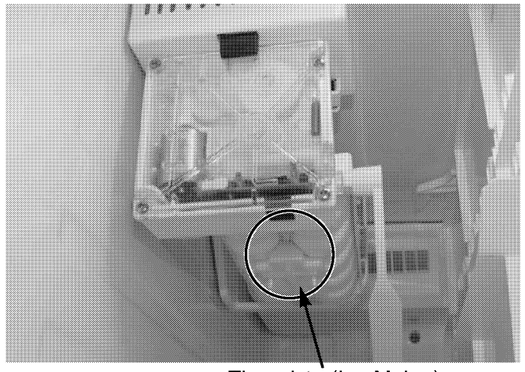
Ambient Thermistor

The ambient thermistor is located inside the upper hinge cover. It sends temperature signals to the micro-processor.

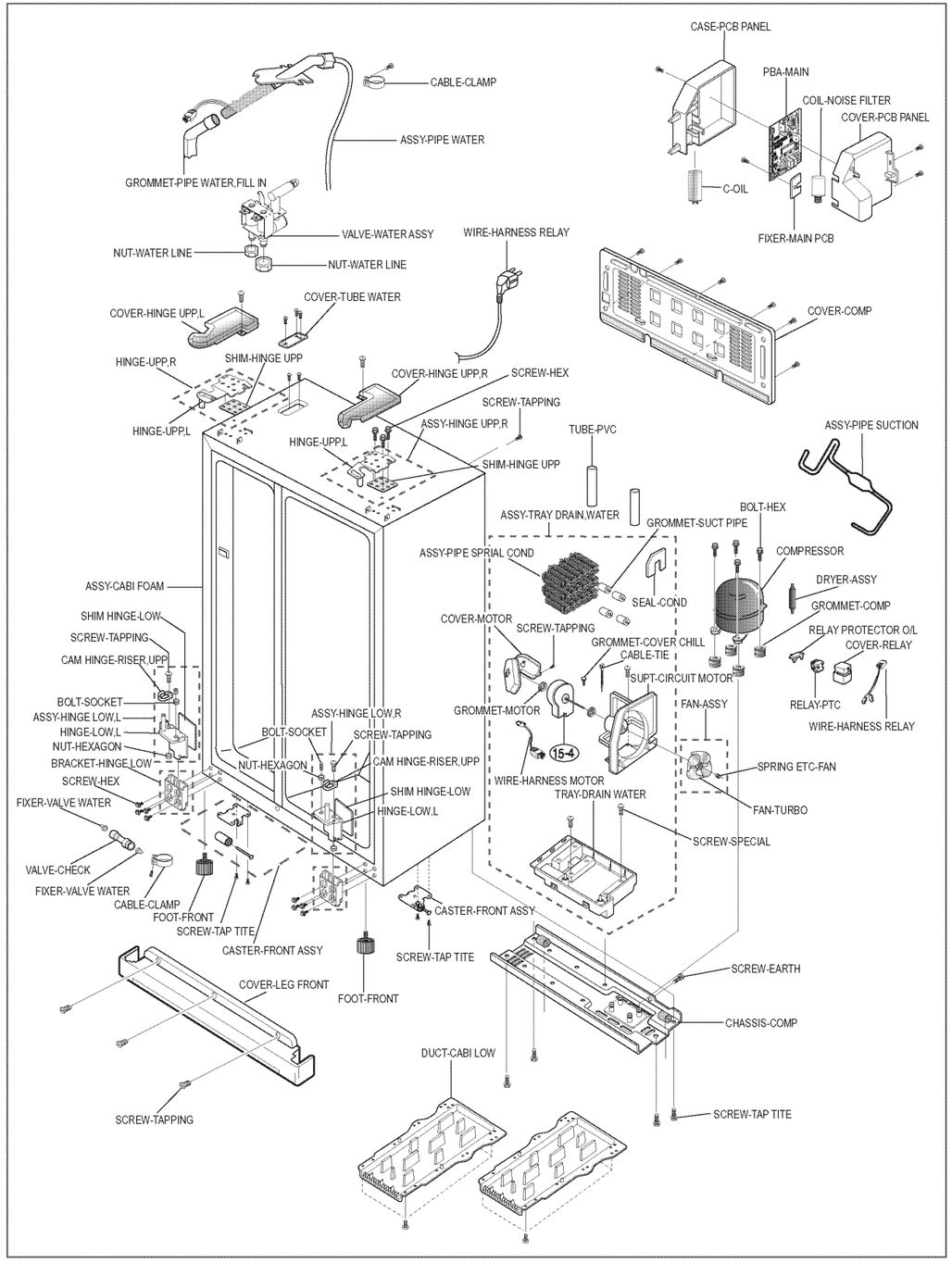


Ice-MakerThermistor

The Ice-Maker thermistor is located in its bottom. The temperature signal sends the micro-processor.



11-3) Cabinet



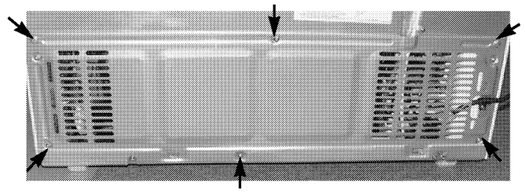
■ Parts List of Refrigerator

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA63-00814B	COVER-LAMP REF,LOW	*	*	*	*	*	*	
DA63-00814C	COVER-LAMP REF,LOW	*	*	*	*	*	*	
DA63-00813A	COVER-LAMP REF,UP	*	*	*	*	*	*	
DA67-30266D	CAP-SCREW	*	*	*	*	*	*	
DA63-00996A	COVER-PURIFIER R,ASSY	*	*	*	*	*	*	
DA63-00856A	COVER-PURIFIER,R	*	*	*	*	*	*	
DA02-90106K	CATALYST-LTC	*	*	*	*	*	*	
DA63-00997A	COVER-PURIFIER L,ASSY	*	*	*	*	*	*	
DA63-00855A	COVER-PURIFIER,L	*	*	*	*	*	*	
DA02-90106K	CATALYST-LTC	*	*	*	*	*	*	
DA97-00159A	ASSY-RAIL CHILL,R	*	*	*	*	*	*	
DA61-00295A	RAIL-CHILLED,R	*	*	*	*	*	*	
DA63-00202A	GROMMET-RAIL	*	*	*	*	*	*	
DA97-00173A	ASSY-RAIL CHILL,L	*	*	*	*	*	*	
DA61-00294A	RAIL-CHILLED,L	*	*	*	*	*	*	
DA63-00202A	GROMMET-RAIL	*	*	*	*	*	*	
DA34-10110B	SWITCH-DOOR	*	*	*	*	*	*	
DA67-00533C	SHELF GLASS-REF,UP	*	*	*	*	*	*	
DA97-00199E	SHELF REF-FOLD,ASSY	*	*	*	*	*	*	
DA67-00687A	SHELF GLASS-REF,LOW	*	*	*	*	*	*	
DA67-00534B	SHELF GLASS-REF LOW	*	*	*	*	*	*	
DA97-00174E	ASSY-TRAY,CHILL	*	*	*	*	*	*	
DA97-00320D	ASSY-CASE CONVERTIBLE	*	*	*	*	*	*	
DA97-00144H	ASSY-CASE VEG,UP	*	*		*	*		
DA97-00148H	ASSY-CASE VEG,LOW	*	*	*	*	*	*	
4713-001145	LAMP-INCANDESCENT	*	*	*	*	*	*	115 ~ 127V, 30W
4713-001147	LAMP-INCANDESCENT	*	*	*	*	*	*	220~230V, 30W
DA63-00864A	COVER-VEG UP	*	*		*	*		
DA63-00865A	COVER-VEG LOW	*	*	*	*	*	*	
DA67-40250E	TRAY-UTILITY		*	*	*	*	*	
DA97-00370B	ASSY-CASE CONV,SUB				*		*	
DA61-00277B	CASE-CONTROL CONVERR,A				*		*	
DA41-00108A	PBA-MAIN		*	*	*	*	*	
6002-000426	SCREW-TAPPING		*	*	*	*	*	
DA39-00215A	WIRE-HARNESS		*	*	*	*	*	
DA32-10109X	SENSOR ASSY		*	*	*	*	*	
6002-000213	SCREW-TAPPING		*	*	*	*	*	
DA61-00278B	CASE-CONTROL CONVERR,A				*		*	
DA97-00371D	ASSY-TRAY CONVERTRIBLE				*		*	
DA63-00820B	GASKET-CONVERTIBLE				*		*	
DA67-00145A	WINE - SHELF	*	*	*	*	*	*	
DA97-00725B	ASSY-CASE FILTER		*	*		*	*	
DA29-00003A	FILTER-WATER ASS'Y		*	*		*	*	

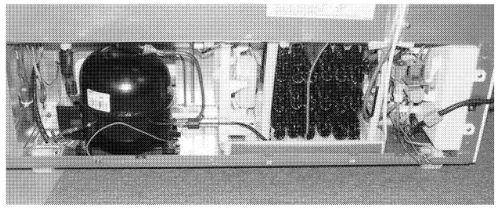
7-3) Machine Compartment Disassembly

Machine Compartment & Electric Box

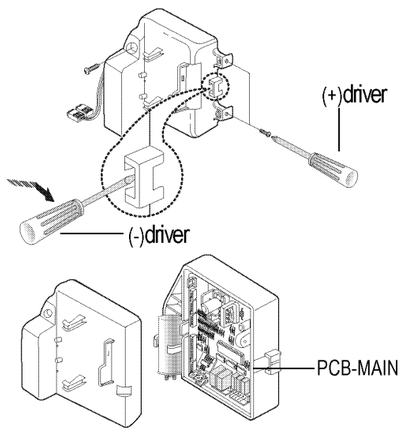
1. Disconnect the power cord of the refrigerator.
2. Remove the fixed screws (6) of compressor cover.



3. Slide up and take off the compressor cover to see the machine compartment.



4. Press the tab in electric box cover to take out by using a flat-blade screw driver.

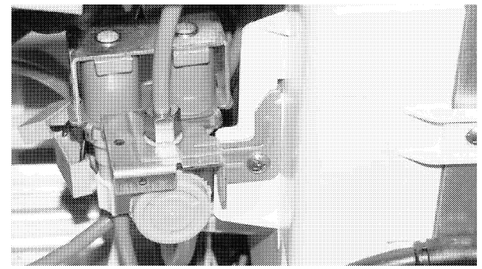


Water Solenoids

When the solenoids receive a signal from the micro-processor, they supply water to the water dispenser or the ice maker.

1. Remove bracket screw (1) on electric box.
2. Take the solenoids assembly out.

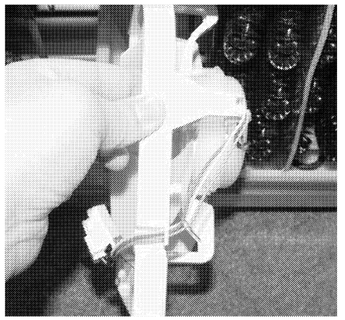
3. Disconnect water tubes (3).



Condenser Fan

The condenser Fan is located in the middle of machine compartment. It cools down the sub-condenser and the compressor.

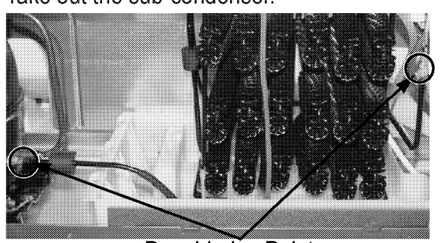
1. Disconnect the condenser fan wire.
2. Remove screw (1) on the drain water tray.
3. Take the condenser fan assembly off.



Sub-condenser

The sub-condenser is located in the machine compartment. The heat is extracted by condenser fan.

1. Desolder the compressor discharge & the sub-condenser outlet.
2. Take out the sub-condenser.



8. Operation Function

8-1) Digital Panel 23

8-2) Temperature Control Function 24

8-3) Power Freeze and Power Cool Functions 25

8-4) Child Lock Function 25

8-5) Ice & Water Dispenser Function 26

8-6) C-Fan Motor Delay Function of the Machine Compartment 26

8-7) CoolSelect Zone™ Function(optional) 26

8-8) Water Filter Indicator Function 27

8-9) Ice-Maker Function 27

8-10) Defrost Function 29

8-11) Forced Operation Function (Pull-down/R-Defrost/R,F-Defrost/Cancellation) . 30

8-12) Sound Function 31

8-13) Exhibition Function 31

8-14) Self-Diagnostics Function 31

8-15) Load Operation Check Function 33

8-16) Restoration Function for Power Outage 33

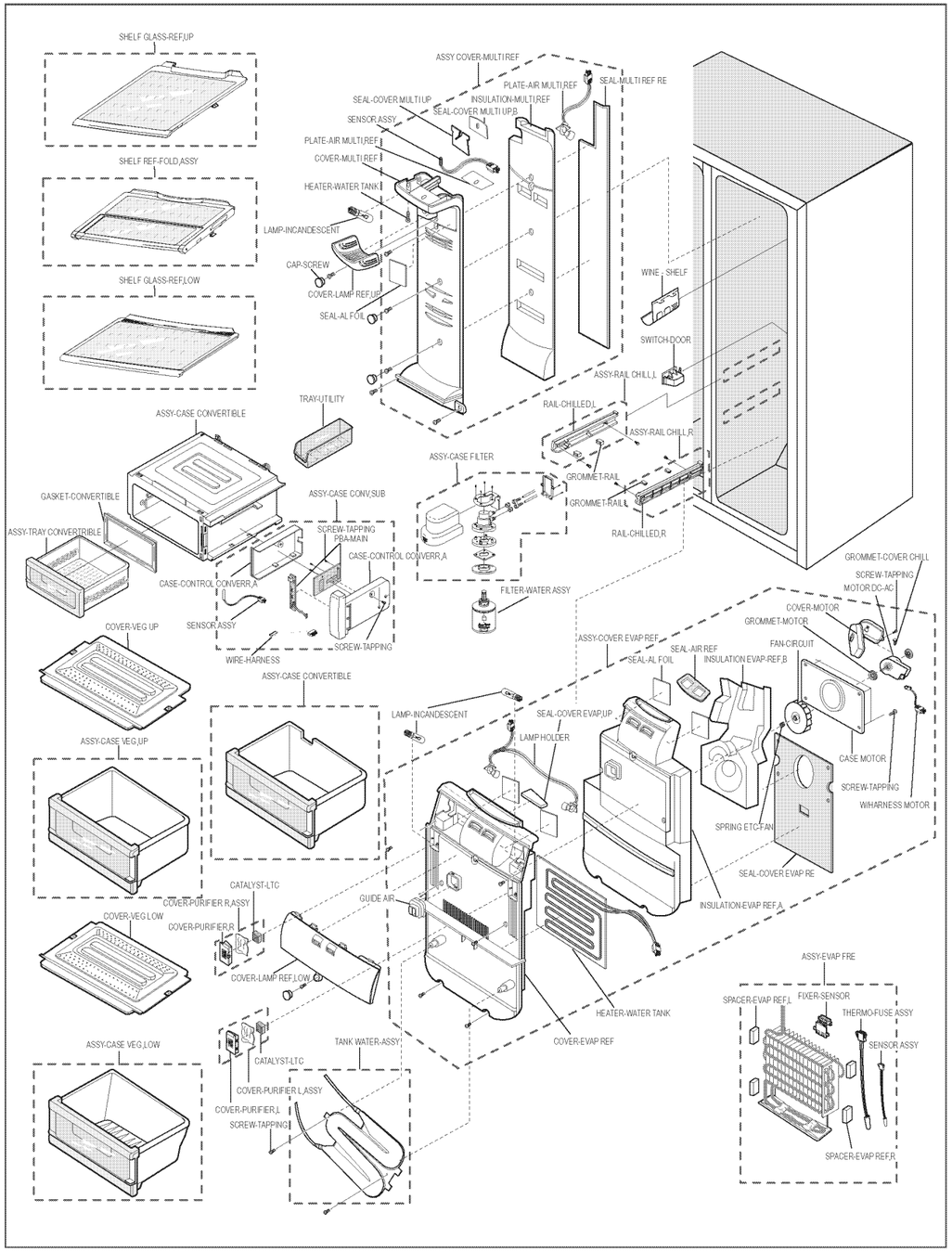
8-17) Set Point Shift Function 33

8-18) Table of Set Point Shift Function 34

■ Parts List of Refrigerator

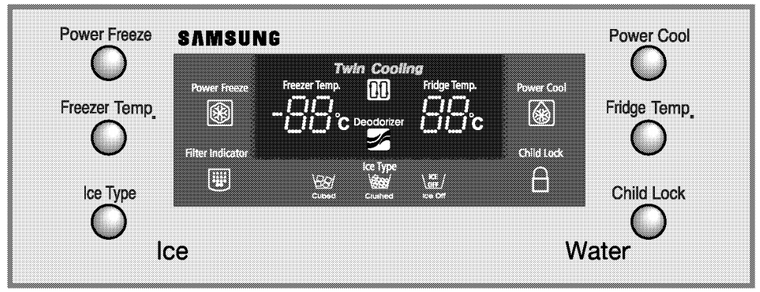
CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA96-00021G	ASSY-EVAP FRE	*	*	*	*	*	*	
DA47-00095B	THERMO-FUSE ASSY	*	*	*	*	*	*	250V
DA32-00006B	SENSOR ASSY	*	*	*	*	*	*	
DA60-00040A	SPACER-EVAP REF,L	*	*	*	*	*	*	
DA60-00041A	SPACER-EVAP REF,R	*	*	*	*	*	*	
DA61-00453A	FIXER-SENSOR	*	*	*	*	*	*	
DA97-00196J	ASSY-COVER EVAP REF	*	*	*	*	*	*	
DA97-00196K	ASSY-COVER EVAP REF	*	*	*	*	*	*	
DA63-00812A	COVER-EVAP REF	*	*	*	*	*	*	
DA61-00560A	GUIDE AIR	*	*	*	*	*	*	
DA47-00025S	LAMP HOLDER	*	*	*	*	*	*	
DA47-00094C	HEATER-WATER TANK	*	*	*	*	*	*	115/110V, 3W
DA47-00094D	HEATER-WATER TANK	*	*	*	*	*	*	127V, 3W
DA47-00094B	HEATER-WATER TANK	*	*	*	*	*	*	230V, 3W
DA47-00094A	HEATER-WATER TANK	*	*	*	*	*	*	220V, 3W
DA62-00133A	SEAL-AL FOIL	*	*	*	*	*	*	
DA62-00053A	INSULATION-EVAP REF,A	*	*	*	*	*	*	
DA62-00205A	INSULATION EVAP-REF,B	*	*	*	*	*	*	
DA62-00083A	SEAL-AIR REF	*	*	*	*	*	*	
DA62-00072B	SEAL-COVER EVAP RE	*	*	*	*	*	*	
DA62-00158A	SEAL-COVER EVAP,UP	*	*	*	*	*	*	
DA61-20128A	SPRING ETC-FAN	*	*	*	*	*	*	
DA31-00016A	FAN-CIRCUIT	*	*	*	*	*	*	
DA61-00417A	CASE MOTOR	*	*	*	*	*	*	BLDC
DA67-00157B	CASE MOTOR	*	*	*	*	*	*	AC
6002-000215	SCREW-TAPPING	*	*	*	*	*	*	
DA63-01146A	GROMMET-MOTOR	*	*	*	*	*	*	
DA63-40119A	GROMMET-MOTOR	*	*	*	*	*	*	
DA31-00020E	MOTOR DC-BLDC,SENSOR	*	*	*	*	*	*	BLDC
DA31-00002S	MOTOR DC-AC	*	*	*	*	*	*	AC
DA39-00060K	W/HARNESS MOTOR	*	*	*	*	*	*	
DA63-00713B	COVER-MOTOR	*	*	*	*	*	*	BLDC
DA63-00138B	COVER-MOTOR	*	*	*	*	*	*	AC
DA63-40167A	GROMMET-COVER CHILL	*	*	*	*	*	*	
6002-000480	SCREW-TAPPING	*	*	*	*	*	*	
DA97-00433A	ASSY COVER-MULTI REF	*	*	*	*	*	*	
DA32-10109Y	SENSOR ASSY	*	*	*	*	*	*	
DA47-00025M	LAMP HOLDER	*	*	*	*	*	*	
DA61-00527A	PLATE-AIR MULTI,REF	*	*	*	*	*	*	
DA62-00052A	INSULATION-MULTI,REF	*	*	*	*	*	*	
DA62-00073A	SEAL-MULTI REF RE	*	*	*	*	*	*	
DA62-00074A	SEAL-COVER MULTI UP	*	*	*	*	*	*	
DA62-00133B	SEAL-AL FOIL	*	*	*	*	*	*	
DA62-00225A	SEAL-COVER MULTI UP,B	*	*	*	*	*	*	
DA63-00821A	COVER-MULTI REF	*	*	*	*	*	*	
DA74-00056F	TANK WATER-ASSY	*	*	*	*	*	*	
6002-000215	SCREW-TAPPING	*	*	*	*	*	*	

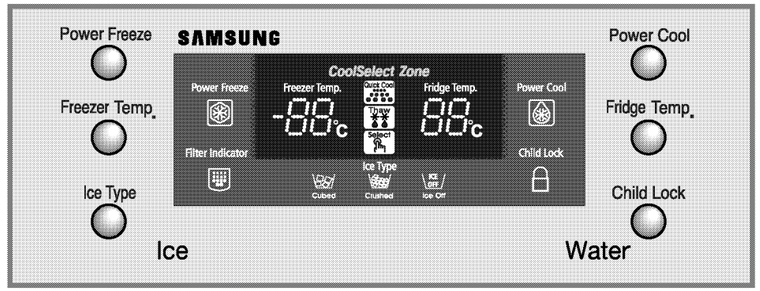
11-2) Refrigerator

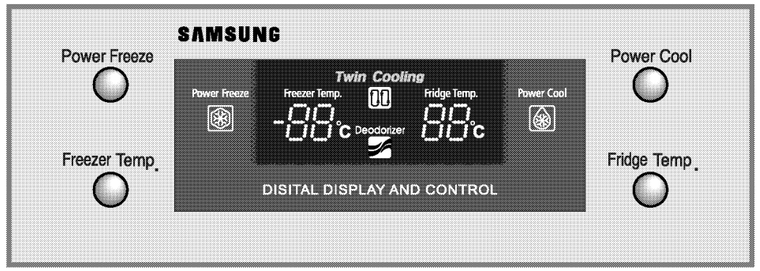


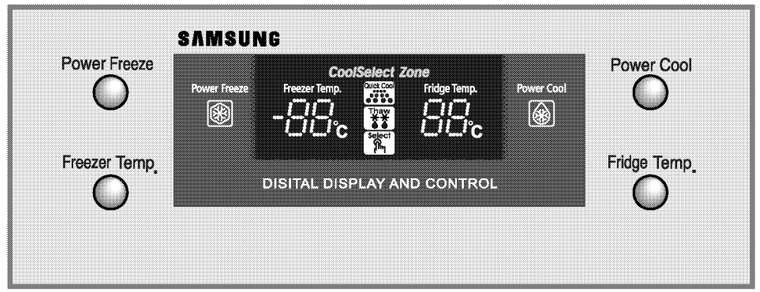
8-1) Control Panel

- For general control panel (Full option & Basic Model)



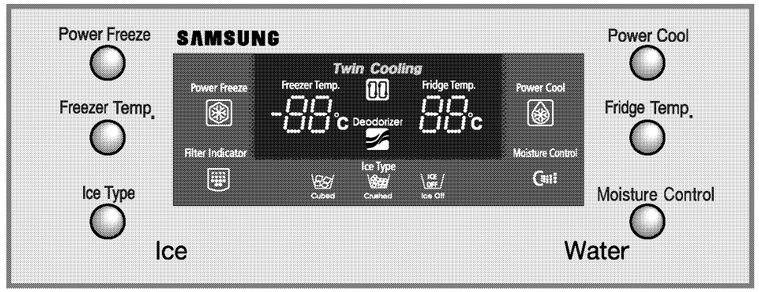


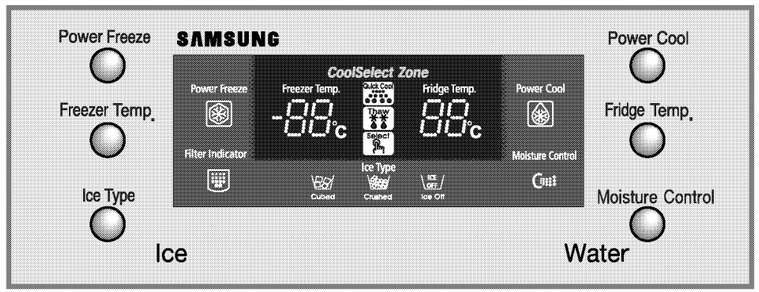




8. Operation Function

● The control panel is applied only for Europe Area





Note) Initially the light of moisture control button is on. If the moisture in the dispenser or Beverage Station™ is found, press this button. So the light will be on, and eliminate the moisture.

8-2) Temperature Control Function

When the system power is initally engaged, the default set temperature are -20℃ for the freezer and 3℃ for the set refrigerator, respectively. The numbers shown on the digital display panel stand for the actual compartments temperatures. When the compartment temperatures go down, so do the numbers on the display panel, and finally they reach the set temperatures. Once the system is stabilized, the display temperatures are the set temperature.

1) Freezer Temperature Control.
To select a set temperature, press the Freezer Temp. button. The display shows the set temperature from -14℃ to -25℃ in sequence.
2) Refrigerator Temperature Control.
To select a set temperature, press the Fridge Temp. button. The display shown the set temperature from 1℃ to 7℃ in sequence.

note) Because of the temperature sensor sensivity, the refrigerator can be under and/or over cooled when the air flow is blocked by stored foods. (Temperature range of the sensor : -9℃~30℃)
In the event of a power failure, if the freezer temperature is maintained lower than 5℃, the last selected set temperature and functions memorized in EEPROM will be restored when the power is on.

Illustrated Parts Catalog.

■ Parts List of Freezer

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA71-00163A	FIXER-NUT		*	*		*	*	
DA66-90003A	GEAR-SOLENOID		*	*		*	*	
DA61-60001A	SLIDER-SOLENOID DISP		*	*		*	*	
DA63-00785A	COVER LAMP-FRE,DISP		*	*		*	*	
DA61-00239A	SUPPORT-CASE MOTOR AUGER		*	*		*	*	
DA70-20017A	PLATE-D/AUGER DISP		*	*		*	*	
DA31-00039F	MOTOR GEARD		*	*		*	*	110~127V
DA31-00039D	MOTOR GEARD		*	*		*	*	220 ~ 230V
DA73-00168A	RUBBER-SOLENOIDE		*	*		*	*	
DA63-00784B	COVER-COOL		*	*		*	*	
DA97-00258A	ASSY ICE MAKER		*	*		*	*	12V
DA61-70254A	SUPPORT-GASKET		*	*		*	*	
DA61-00524A	GUIDE-ICE,FULL		*	*		*	*	
DA63-10949A	COVER-SENSOR		*	*		*	*	
DA71-20269A	FIXER-SENSOR		*	*		*	*	
DA67-40308A	TRAY-ICE		*	*		*	*	
DA61-00244A	SUPPORT-ICE MAKER		*	*		*	*	
DA71-20252A	FIXER-GROMMET DOOR		*	*		*	*	
6002-000213	SCREW-TAPPING		*	*		*	*	
DA71-20270A	FIXER-CASE		*	*		*	*	
DA97-00157C	SHELF FRE-MID,ASSY	*	*	*	*	*	*	
DA97-00158D	SHELF FRE-LOW,ASSY	*	*	*	*	*	*	
DA97-00142F	ASSY-CASE BASKET,UP	*	*	*	*	*	*	
DA97-00143F	ASSY-CASE BASKET,LOW	*	*	*	*	*	*	
DA97-00111C	ASSY-HEATER DRAIN,FRE	*	*	*	*	*	*	115V,45W
DA97-00111D	ASSY-HEATER DRAIN,FRE	*	*	*	*	*	*	127V,45W
DA97-00111B	ASSY-HEATER DRAIN,FRE	*	*	*	*	*	*	230V/50Hz,45W
DA97-00111A	ASSY-HEATER DRAIN,FRE	*	*	*	*	*	*	220V,45W
DA97-00111C	ASSY-HEATER DRAIN,FRE	*	*	*	*	*	*	110V/60Hz,45W
DA34-10120C	SWITCH DOOR	*	*	*	*	*	*	250V

■ Parts List of Freezer

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA71-70003A	GUIDE-ICE DISPENSER		*	*		*	*	
DA60-90135A	PIN		*	*		*	*	
DA61-20124A	SPRING ETC-DISPENSER		*	*		*	*	
DA63-40167A	GROMMET-COVER CHIL		*	*		*	*	
DA66-00140A	LEVER-CUBE		*	*		*	*	
DA61-20139A	SPRING ETC-ICE MAKER		*	*		*	*	
DA70-00394A	PLATE-BUCKET		*	*		*	*	
DA60-30108A	NUT-HEX		*	*		*	*	
DA72-60313A	SEAL-POM		*	*		*	*	
DA72-60314A	SEAL-POM		*	*		*	*	
DA31-20120C	BLADE		*	*		*	*	
DA60-90136A	PIN-SPIRAL		*	*		*	*	
DA71-20231A	FIXER-GUARD		*	*		*	*	
DA31-20121A	BLADE		*	*		*	*	
DA31-20122A	BLADE		*	*		*	*	
DA31-20009A	BLADE-DISPENSER		*	*		*	*	
DA31-00022B	BLADE-DISPENSER		*	*		*	*	
DA65-00023A	CLAMP-HELIX DIPS		*	*		*	*	
DA66-30138A	LEVER-DISPENSER		*	*		*	*	
DA31-20120A	BLADE		*	*		*	*	
DA31-20120B	BLADE		*	*		*	*	
DA97-00705A	ASSY CASE AUGER		*	*		*	*	115V
DA97-00705D	ASSY CASE AUGER		*	*		*	*	127V,60Hz, 25Cu ft
DA97-00705C	ASSY CASE AUGER		*	*		*	*	127V,60Hz, 25Cu ft
DA97-00705F	ASSY CASE AUGER		*	*		*	*	230V,50Hz, 24/25Cu ft
DA97-00705E	ASSY CASE AUGER		*	*		*	*	230V,50Hz, 27Cu ft
DA97-00706F	ASSY CASE AUGER		*	*		*	*	220V,50Hz, 25Cu ft
DA97-00705E	ASSY CASE AUGER		*	*		*	*	220V,50Hz, 27Cu ft
DA97-00706F	ASSY CASE AUGER		*	*		*	*	220V,60Hz, 25Cu ft
DA97-00705E	ASSY CASE AUGER		*	*		*	*	220V,60Hz, 27Cu ft
DA97-00706F	ASSY CASE AUGER		*	*		*	*	110V,60Hz, 25Cu ft
DA97-00705E	ASSY CASE AUGER		*	*		*	*	110V,60Hz, 27Cu ft
DA61-00262C	CASE-MOTOR AUGER		*	*		*	*	
DA60-00001B	SCREW-SPECIAL		*	*		*	*	
DA60-00001A	SCREW-SPECIAL		*	*		*	*	
DA63-00787A	COVER-MOTOR AUGER		*	*		*	*	
DA96-00036A	W/HARNESS SUB-(EM)		*	*		*	*	
DA47-40112V	LAMP HOLDER		*	*		*	*	250V,1A
4713-001145	LAMP-INCANDESCENT		*	*		*	*	115 ~ 127V, 30W
4713-001147	LAMP-INCANDESCENT		*	*		*	*	220~230V, 30W
DA74-40151G	VALVE-SOLENOID		*	*		*	*	110~127V
DA74-40151F	VALVE-SOLENOID		*	*		*	*	220~230V
DA72-60348A	SEAL-FOAM PE		*	*		*	*	
DA60-90137A	PIN-SPRING		*	*		*	*	
DA60-90137B	PIN-SPRING		*	*		*	*	
DA63-90008A	BUSH-SOLENOID		*	*		*	*	
DA65-20107A	SADDLE-SOLENOID		*	*		*	*	
DA61-20140A	SPRING ETC-SOLENOID		*	*		*	*	

8-3) Power Freeze and Power Cool Functions

- Select the Power Freeze or Power Cool buttons separately.
- These buttons are toggled ON and OFF and the indicators as well.
- Although you select Power Freeze or Power Cool, the set temperatures in the freezer and refrigerator are not changed.
- The set temperatures for the compartments can be changed while these functions are in use.

1) Power Freeze function

1-1) When you press the Power Freeze button, the LED indicator lights right away, but there is 10 seconds lag time to an actual operation. When this button is pressed again, the Power Freeze function stops and the indicator is off immediately .

1-2) If you select Power Freeze, both the compressor and the freezer fan run for 10 hours continuously.

note) When the Power Freeze is selected, it enables maximum ice maker output. The ice making interval is reduced from 90 mins to 55 mins (55 mins after the water delivery, if the ice temperature is maintained lower than -7 ℃, the ice tray will be twisted). When the ice bucket is full before 10 hours of operation, Power Freeze is automatically terminated.

1-3) During Power Freeze, the freezer retains the current settings.

1-4) When Power Freeze expires, the indicator goes off and the freezer set temperature will be restored.

2) Power Cool function

2-1) Power Cool operation and the indicator work exactly same as the Power Freeze function.

2-2) When Power Cool is selected, COMP and R-FAN operate continuosly until the refrigerator reaches -4℃. This function will be terminated after 2 ½ hr running.

3) When you select Power Freeze and Power Cool together

Each function works at the same time. The COMP and F-FAN run continuously and the R-FAN runs until -4℃ in the refrigerator.

4) Initial Power-On

4-1) The freezer and the refrigerator temperatures are higher than -10℃and 10℃ espectively if, respectively. If Power Freeze is selected, the R-FAN will be off. If Power Cool is selected, the F-FAN will be off.

4-2) When both functions are selected, there is no benefit of fast cooling for each compartment.

8-4) Child Lock Function

- When the child lock button is pressed for 3 seconds, the child lock indicator is on with an audible tone.

-When it is locked, no function commands except the Ice type button will be accepted.

-This function will prevent accidental setting that may be caused by children or pets.

-To unlock the setting functions, press this button for 3 seconds again.

8-5) Ice & Water Dispenser Function

- Among several ice-maker functions, the ice extraction function is performed by mechanical system. Only the relay control for a cubed-ice dispensing and the SSR control for the ice chute door are performed electronically.

1) Select Cubed/Crushed/Ice-off function
 1-1) The Ice Type button selects Cubed/Crushed/Ice-off options in sequence.
 1-2) A default setting is Cubed option.
 1-3) If Cubed ice is selected, the Crushed ice bypass solenoid and the geared motor will allow Cubed ice to by pass the ice Crusher.
 1-4) If Ice-off is selected, the ice maker will stop working. This option will be terminated when Cubed and Crushed options are selected.

Note) When the Ice-off indicator is on and the remained ice is in tray, only Cubed ice will be dispensed from the ice bucket.

 1-5) The ice chute door must be open for 5 seconds after dispensing ceases. After this 5 seconds delay, SSR will be controlled to shut the ice chute door.

Note) Do not force to close the ice chute door. Try to dispense some more ice again to work it automatically.

2) Water Dispenser function
 2-1) To dispense water, depress the water dispenser lever located in the dispenser recess.
 2-2) When the lever is depressed, the water solenoid valve located in the machine compartment is open to flow water.
 2-3) There is no electronic control function for this option.

8-6) C-Fan Motor Delay Function of the Machine Compartment

- According to the ambient temperature, the condenser fan located in the machine compartment is operated with different modes.

	Ranges of ambient temp.	Operation
C-FAN Delay function	Above 19℃	C-FAN is ON as soon as the compressor is on.
	16℃ ~ 18℃	C-FAN is ON with 5 minutes delay from the compressor on.
	Below 15℃	C-FAN is OFF regardless of the compressor operation.

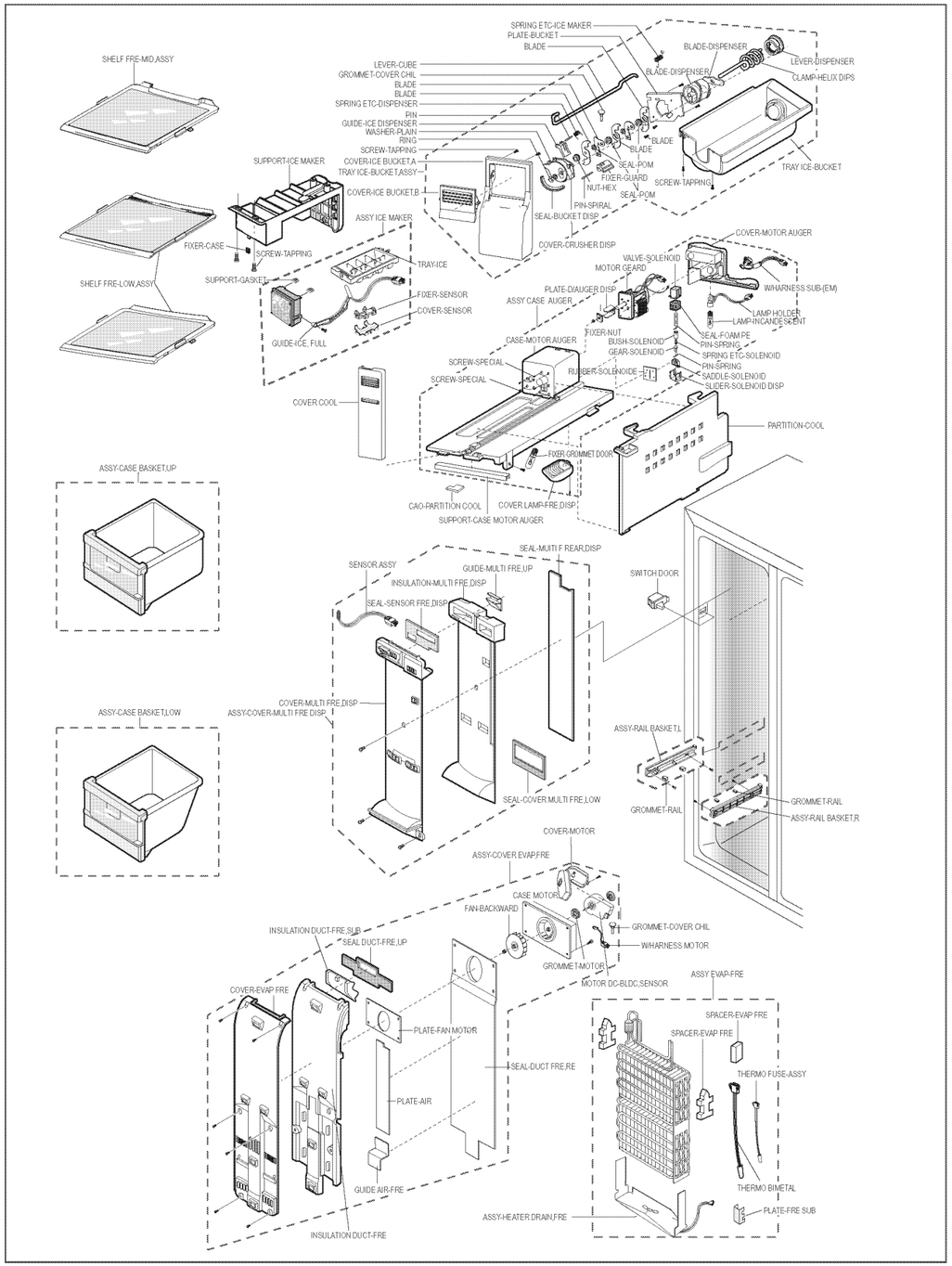
8-7) CoolSelect Zone™ Function (Optional)

- To select this function, open the refrigerator door and press the button on the control panel of CoolSelect Zone ™ drawer.
- When the CoolSelect Zone™ function is selected, the damper inside fan ductwork is open. So the refrigerator cooling is performed first, then the damper is closed to control the CoolSelect Zone™ temperature.

■ Parts List of Freezer (http://www.e4buyer.com/refrigerator)

CODE-NO	PART NAME	OPTION						Spec
		RS2*N	RS2*D	RS2*J	RS2*B	RS2*F	RS2*K	
DA96-00021C	ASSY EVAP-FRE	*	*	*	*	*	*	115V,215W
DA96-00021H	ASSY EVAP-FRE	*	*	*	*	*	*	127V,140W
DA96-00021G	ASSY EVAP-FRE	*	*	*	*	*	*	230V,215W
DA96-00021F	ASSY EVAP-FRE	*	*	*	*	*	*	220V,215W
DA96-00021G	ASSY EVAP-FRE	*	*	*	*	*	*	115V,215W
DA47-00095C	THERMO FUSE-ASSY	*	*	*	*	*	*	250V
DA47-10160E	THERMO BIMETAL	*	*	*	*	*	*	125/250V
DA60-00042A	SPACER-EVAP FRE	*	*	*	*	*	*	
DA60-00043A	SPACER-EVAP FRE	*	*	*	*	*	*	
DA97-00466G	ASSY-COVER EVAP,FRE	*	*	*	*	*	*	
DA63-00797B	COVER-EVAP FRE	*	*	*	*	*	*	
DA62-00123A	INSULATION DUCT-FRE	*	*	*	*	*	*	
DA61-00412A	GUIDE AIR-FRE	*	*	*	*	*	*	
DA61-00410A	PLATE-AIR	*	*	*	*	*	*	
DA61-00411A	PLATE-FAN MOTOR	*	*	*	*	*	*	
DA62-00077C	SEAL-DUCT FRE,RE	*	*	*	*	*	*	
DA62-00122A	INSULATION DUCT-FRE,SUB	*	*	*	*	*	*	
DA62-00129A	SEAL DUCT-FRE,UP	*	*	*	*	*	*	
DA31-00038A	FAN-BACKWARD	*	*	*	*	*	*	
DA61-00417A	CASE MOTOR	*	*	*	*	*	*	
DA63-01146A	GROMMET-MOTOR	*	*	*	*	*	*	
DA31-00020E	MOTOR DC-BLDC,SENSOR	*	*	*	*	*	*	
DA63-00713B	COVER-MOTOR	*	*	*	*	*	*	
DA39-00060K	W/HARNESS MOTOR	*	*	*	*	*	*	BLDC
DA63-40167A	GROMMET-COVER CHIL	*	*	*	*	*	*	SILICON
DA97-00489A	ASSY-COVER-MULTI FRE DISP		*	*		*	*	
DA63-00795A	COVER-MULTI FRE,DISP		*	*		*	*	
DA32-10109W	SENSOR ASSY		*	*		*	*	
DA62-00168A	SEAL-SENSOR FRE,DISP		*	*		*	*	
DA62-00121A	INSULATION-MULTI FRE,DISP		*	*		*	*	
DA61-00495A	GUIDE-MULTI FRE,UP		*	*		*	*	
DA62-00120A	SEAL-MUITI F REAR,DISP		*	*		*	*	
DA62-00082A	SEAL-COVER MULTI FRE,LOW		*	*		*	*	
DA61-00355B	ASSY-RAIL BASKET,L		*	*		*	*	
DA63-00202A	GROMMET-RAIL		*	*		*	*	
DA61-00356B	ASSY-RAIL BASKET,R		*	*		*	*	
DA63-00202A	GROMMET-RAIL		*	*		*	*	
DA97-00685B	TRAY ICE-BUCKET,ASSY		*	*		*	*	
DA63-00775C	TRAY ICE-BUCKET		*	*		*	*	
DA63-00777A	COVER-ICE BUCKET,A		*	*		*	*	
DA63-00778A	COVER-ICE BUCKET,B		*	*		*	*	
DA60-90125A	RING		*	*		*	*	
DA63-10016A	COVER-CRUSHER DISP		*	*		*	*	
6002-000475	SCREW-TAPPING		*	*		*	*	
6002-000471	SCREW-TAPPING		*	*		*	*	
DA72-60315A	SEAL-BUCKET DISP		*	*		*	*	
DA60-40116A	WASHER-PLAIN		*	*		*	*	
6001-000033	SCREW-MACHINE		*	*		*	*	

11-1) Freezer



1) Select function
 1-1) Using Select button, Cool, Chill(-1℃), and Soft Freeze(-5℃) options can be selected in sequence. Cool option maintains a set temperature of the refrigerator.

2) Quick Cool function
 2-1) If the Quick Cool is selected, LEDs will flash 60 and Min. The count will be decreased in every minute.
 2-2) To cancel this function, press Quick Cool button again or Thaw button or Select button. Otherwise, it will be terminated 60 minutes later automatically.
 2-3) After this function ends, this drawer will come back to Cool option.
 2-4) A defrost cycle will be postponed until Quick Cool option is finished.

3) Thaw function
 3-1)When the thaw button is pressed, LEDs will flash 4, 6, 10, and 12 in sequence and Hr.
 3-2) The count will be decreased in every hour.
 3-3) A cancellation of this function is same as Quick Cool function.
 3-4) After this function ends, this drawer will be maintained with -1℃.
 3-5) While the compressor is on, this drawer retains a certain temperature and while the compressor is off, the defrost heater is activated and R-FAN is on with a closed position of the damper.

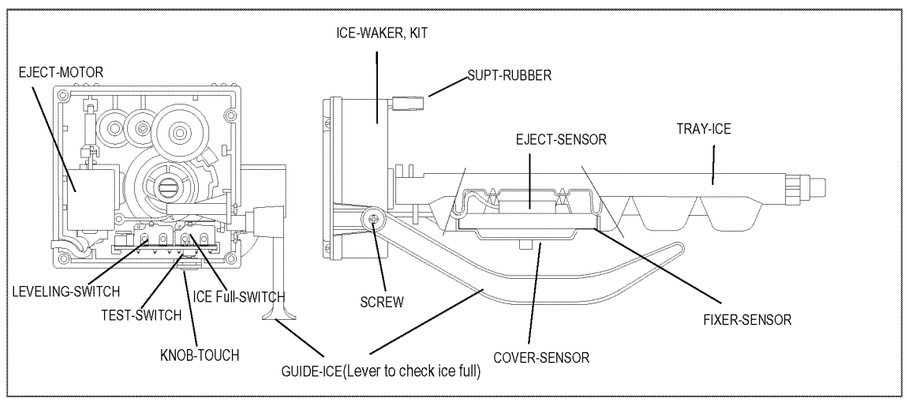
8-8) Water Filter Indicator Function

1) Filter Indicator
 1-1)This indicator initally lights in green. The light color will be changed to orange after 5 month operation then to red at the 6th month. The EEPROM in the control board counts a period of time regardless of a power failure.
 1-2)To reset the counter and the light color, press Ice Type button and Child lock button for 3 seconds simultaneously.
 1-3)If these two buttons are pressed simultaneously for 5 seconds, this function will cease.
 1-4)To restore this function, press these buttons again for 3 seconds.

8-9) Ice-Maker Function

- The Ice-maker is referred to the device with an automatic ice production, storage in the ice bucket and dispensing through the ice chute.

1) Ice-maker parts

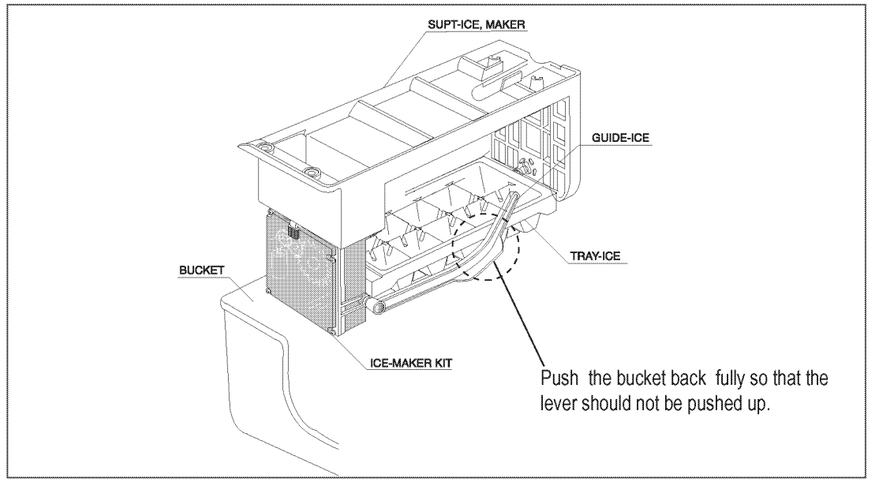


2) Preparation of Ice-maker

2-1) Connect the water line to the water supply valve of refrigerator to supply water. (See how to connect a water supply line in the owner's manual.)

2-2) Push the bucket back fully so that the guide-ice of ice maker should not touch the back of bucket. (If the back of bucket touches the guide-ice of ice maker, the ice maker will not make ice any more because of a ice full signal.)

2-3) It takes 6 hours to have a first ice, and throw away 2-3 times of these ice to make sure the supplied water clean.



1) Initial Operation function

1-1) Whenever the power is on, the control board checks the ice tray leveling with the leveling switch within 2 seconds.

1-2) If the leveling switch is not off position, the geared motor will turn to the initial position to make the ice tray leveled.

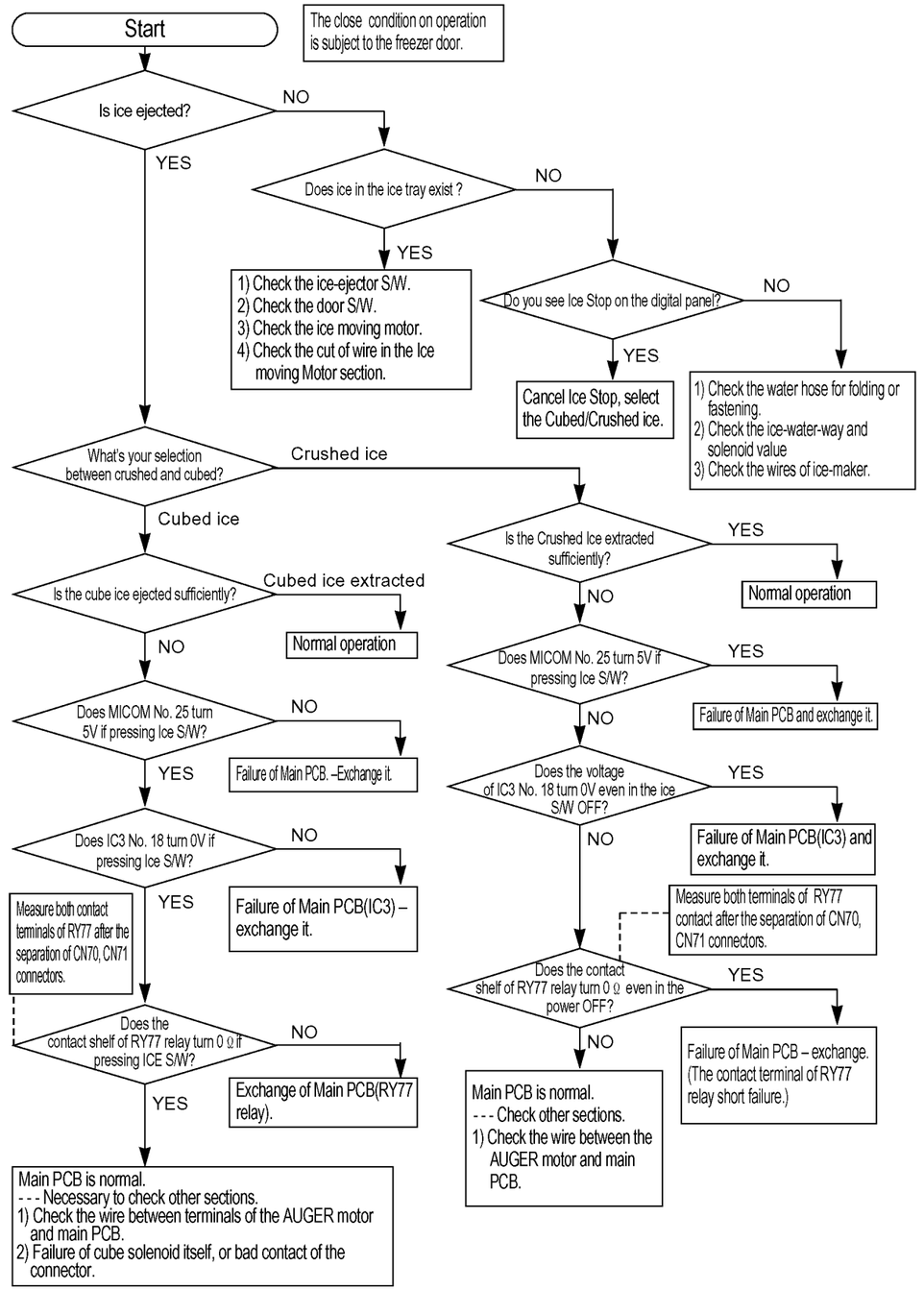
1-3) When the ice tray is leveled, it will remain this position for 2 hours (1 cycle time for ice production).

1-4) After 2 hours, the sensor located under the ice tray will measure the tray temperature. If the temperature is maintained lower than -7 ℃ for 5 minutes, and the ice full switch is off position, the ice tray twisting process will begin.

<Reference table>

Leveling S/W	Ice full S/W	Judgement	Remark
ON("LOW")	ON("LOW")	Not ready	· MICOM Port PIN #51: Leveling PIN #51: Ice full · Port level OFF : 4.5V ↑ ON : 0.5V ↓
ON("LOW")	OFF("HIGH")	Not ready	
OFF("HIGH")	ON("LOW")	Not ready(Ice bucket with full of ice)	
OFF("HIGH")	OFF("HIGH")	Ready	

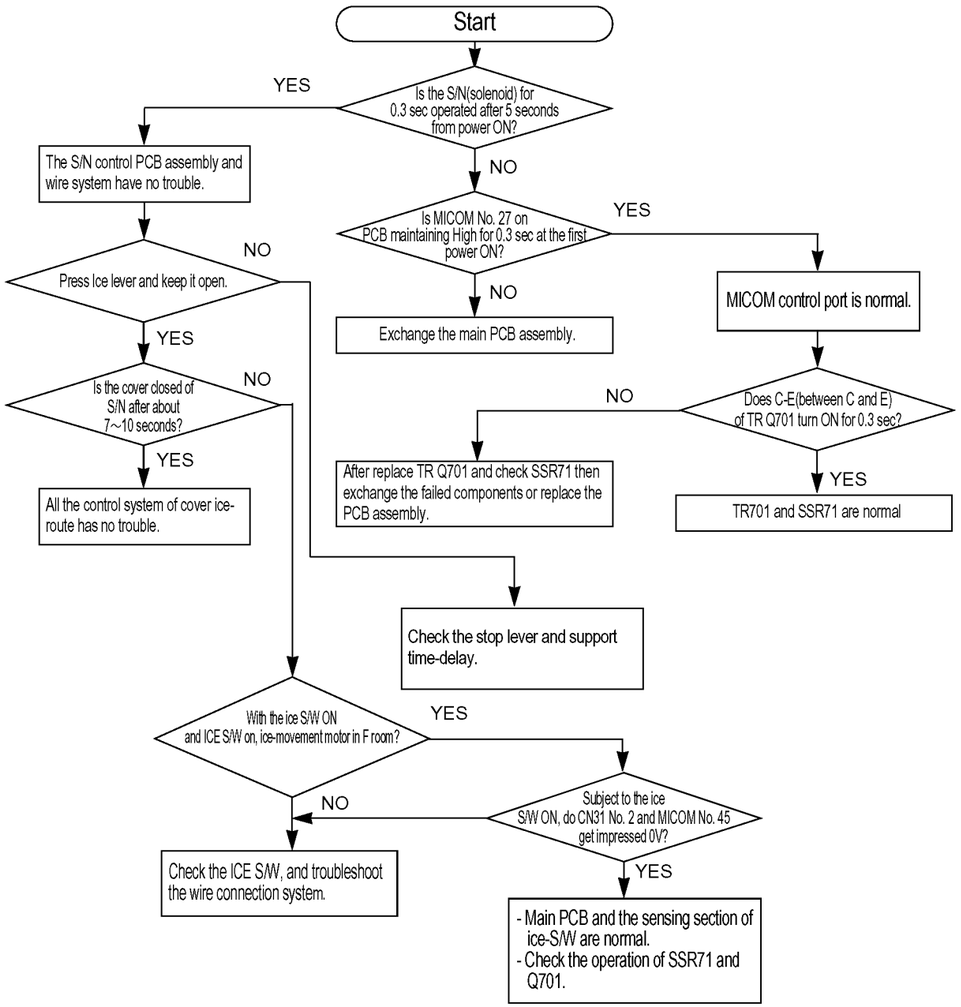
10-11) If Crushed Ice/Cubed Ice doesn't work properly:


Start
The close condition on operation is subject to the freezer door.
Is ice ejected?
NO
YES
Does ice in the ice tray exist ?
NO
YES
1) Check the ice-ejector S/W.
2) Check the door S/W.
3) Check the ice moving motor.
4) Check the cut of wire in the Ice moving Motor section.
Do you see Ice Stop on the digital panel?
NO
YES
Cancel Ice Stop, select the Cubed/Crushed ice.
1) Check the water hose for folding or fastening.
2) Check the ice-water-way and solenoid value
3) Check the wires of ice-maker.
What's your selection between crushed and cubed?
Crushed ice
Cubed ice
Is the cube ice ejected sufficiently?
Cubed ice extracted
NO
Normal operation
Does MICOM No. 25 turn 5V if pressing Ice S/W?
NO
YES
Failure of Main PCB. –Exchange it.
Does IC3 No. 18 turn 0V if pressing Ice S/W?
NO
YES
Failure of Main PCB(IC3) – exchange it.
Measure both contact terminals of RY77 after the separation of CN70, CN71 connectors.
Does the contact shelf of RY77 relay turn 0 Ω if pressing ICE S/W?
NO
YES
Exchange of Main PCB(RY77 relay).
Main PCB is normal.
- - - Necessary to check other sections.
1) Check the wire between terminals of the AUGER motor and main PCB.
2) Failure of cube solenoid itself, or bad contact of the connector.
Is the Crushed Ice extracted sufficiently?
YES
Normal operation
NO
Does MICOM No. 25 turn 5V if pressing Ice S/W?
YES
Failure of Main PCB and exchange it.
NO
Does the voltage of IC3 No. 18 turn 0V even in the ice S/W OFF?
YES
Failure of Main PCB(IC3) and exchange it.
NO
Measure both terminals of RY77 contact after the separation of CN70, CN71 connectors.
Does the contact shelf of RY77 relay turn 0 Ω even in the power OFF?
YES
Failure of Main PCB – exchange. (The contact terminal of RY77 relay short failure.)
NO
Main PCB is normal.
- - - Check other sections.
1) Check the wire between the AUGER motor and main PCB.

10-10) If the solenoid in the ice-chute cover doesn't work :

Preliminary check

1) Check if the solenoid is unconditionally operated for 0.3 sec, independent of the Open/Close condition of cover ice-route, after a lapse of about 5 seconds from power ON. (Before installation, the cancellation of cover ice-route open is enabled.)
2) Check if the connector in upper hinge section is hook-up correctly.


Start
Is the S/N(solenoid) for 0.3 sec operated after 5 seconds from power ON?
YES
NO
The S/N control PCB assembly and wire system have no trouble.
Is MICOM No. 27 on PCB maintaining High for 0.3 sec at the first power ON?
YES
NO
Press Ice lever and keep it open.
NO
YES
Exchange the main PCB assembly.
MICOM control port is normal.
Is the cover closed of S/N after about 7~10 seconds?
NO
YES
NO
Does C-E(between C and E) of TR Q701 turn ON for 0.3 sec?
YES
All the control system of cover ice-route has no trouble.
After replace TR Q701 and check SSR71 then exchange the failed components or replace the PCB assembly.
TR701 and SSR71 are normal
Check the stop lever and support time-delay.
With the ice S/W ON and ICE S/W on, ice-movement motor in F room?
YES
NO
Subject to the ice S/W ON, do CN31 No. 2 and MICOM No. 45 get impressed 0V?
YES
Check the ICE S/W, and troubleshoot the wire connection system.
- Main PCB and the sensing section of ice-S/W are normal.
- Check the operation of SSR71 and Q701.

2) Water Supply function
2-1) When the ice tray is leveled again after ejecting ice, the water solenoid value will be controlled to supply water by time check basis. (See the "Time to supply water" Table)

3) Ice production
3-1) After 90 minutes pass from the water supply, the control board will check the temperature.
3-2) If the sensor reads the temperature lower than -9℃ for more than 5 minutes, than the ice production process is completed.

4) Test function
- In order to operate a test function, press the knob (Test Switch) for 1.5 second.
- This function can be used to check a proper working, to clean the ice tray, and to adjust the water level in the ice tray.

4-1) This function only works when the ice tray is leveled and the ice full signal is cleared.
4-2) When the water line is connected, each process such as a water supply, ejection, and leveling, can be investigated by this button.

5) Ice off function
5-1) When the Ice off option is selected by Ice Type button, the ice making process will cease.
5-2) When the ice making process ceases, the final state will be the ice tray with the supplied water.
5-3) When Cubed or Crushed option is selected again, the control board will check an accummlated time period. After making it 90 minutes and when the ice tray temperature is acceptable, ice ejection process will begin.

6) Functions when the freezer door is open
- When the freeze door is open, all ice maker related processes will cease in order to minimize noise and to prevent ice from dispensing.

6-1) The ice tray stops moving regardless of the position.
6-2) The water supply process remains working as usual.
6-3) If the ice tray is in the middle of ice ejecting process, close the freezer for 30 seconds and check if the tray is leveled. If it is not leveled, it must be out of order.

8-10) Defrost Function

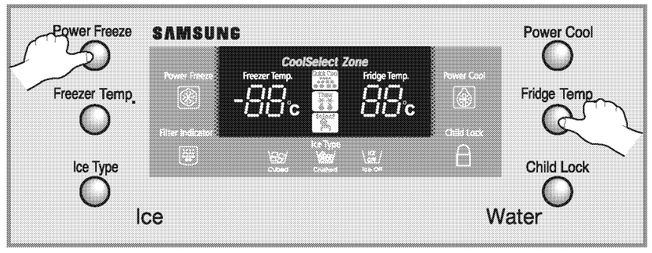
1) A defrost is determined based on the accumulated compressor on-time.
2) When the power is engaged for the first time, the defrost cycle for the freezer and the refrigerator will begin after 4 hours of the accumulated compressor on-time.
3) A defrost interval depends on the ambient temperature, the number of door openings, and the door open time.
4) A minimum interval is 6 hours and a maximum is 8 hours for the refrigerator, and 12 hours and 16 hours for the freezer, respectively.
5) The defrost heater on-time is determined by the defrost sensors as follow :

	Refrigerator	Freezer
Heater ON	Below 10℃	-
Heater OFF	17℃	10℃

8-11) Forced Operation Function (Pull-down / R-Defrost / R.F-Defrost / Cancellation)

- This function enables a pull-down mode, a defrost mode for the refrigerator only, a defrost mode for the freezer and the refrigerator at the same time, and a cancellation of this function.
- Press Power Freeze and Fridge Temp. buttons for 8 seconds simultameously to get in the ready mode for a forced operation.
- The display panel will return to normal after 20 seconds in the ready mode.
- At the ready mode, press any button(except Ice Type and Child Lock) once to start a pull-down operation, twice for a defrost cycle for the refrigerator, three times for a defrost cycle for the freezer and the refrigerator, and finally four times for cancellation of this function.
- Another way to cancel this function is to simply plug out and in the power cord.

Press both button for 8 seconds at the same time.



1) Pull-down Operation
  1-1) At the ready mode, press any button once then the buzzer will beep (ON for 1/2 second and OFF for 1/2 second) until this mode is cancelled.
  1-2) At this pull-down mode, the compressor will start immediately (No 5 minute delay) and if the system is in the defrost cycle, it will be cancelled right away.

Note) If this pull-down mode begins right after the compressor was off, the compressor may not start to run due to an overload condition.

  1-3) At this mode, the compressor and freezer fan will operate continuously for 24 hours and the refrigerator fan will be on and off according to the set temperature(-20 ℃)
  1-4) After 24 hour operation, the system will be cycled at -25℃ for the freezer and 1℃ for the refrigerator.
  1-5) In order to cancel this mode at any time, select the next mode on the ready mode or power off the system.

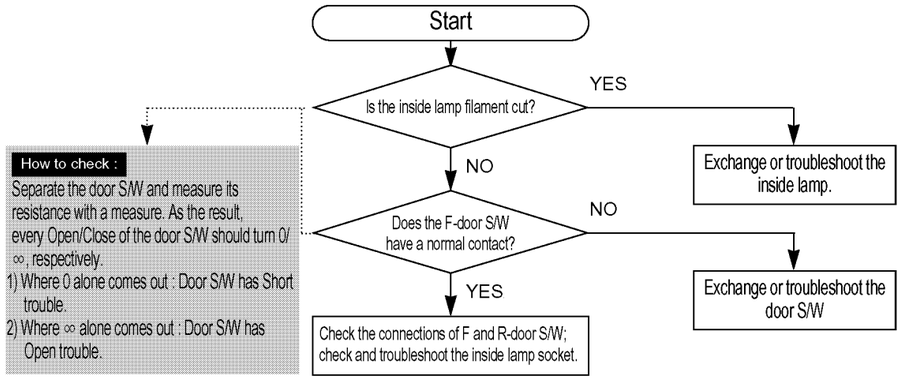
2) Defrost operation
  2-1) At the pull-down mode, press any button again on the ready mode to begin the defrost cycle for the refrigerator.
  2-2) The beep sound continues for 3 second at the beginning, then ON for 3/4 seconds and OFF for 1/4 second until this mode cease.
  2-3) After this operation, the system will come back to normal operation.
  2-4) At this mode, press any button again on the ready mode to operate the defrost cycles for both compartments.
  2-5) The beep sound continues for 3 seconds at that time, then ON for 1/4 second and OFF for 3/4 seconds until the defrost operation cease.

3) Cancellation
  3-1) At the R,F-Defrost mode, press ant button again on the ready mode to return to a normal operation.
  3-2) Simply unplug the power cord, then plug it again to return to a normal operation.

10-9) If the lamps of freezer / refrigerator does not light.

⚠ Caution!

1. When you are exchanging the lamp of freezer, please exchange or troubleshoot it with the power OFF to avoid an electric shock.
2. Please keep in mind you do not get burnt by the excessive heating of an incandescent light bulb.

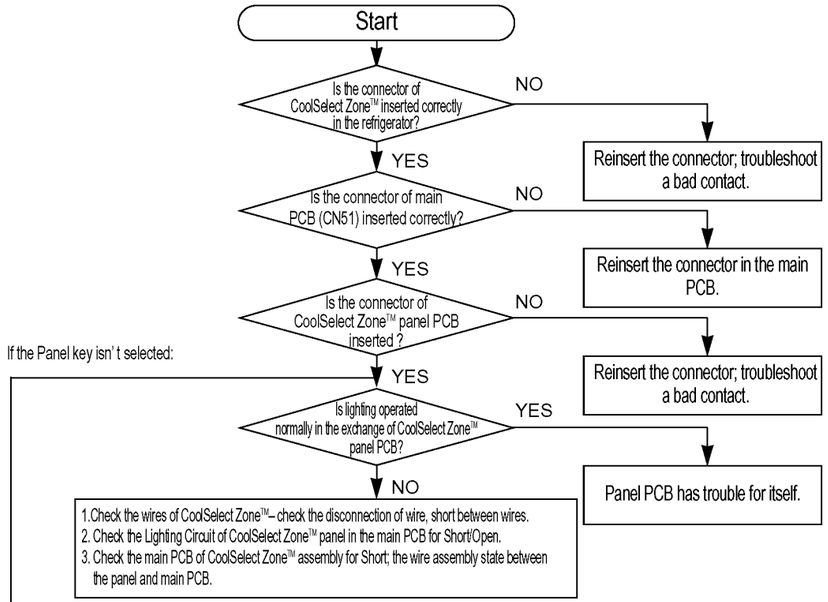

Start
Is the inside lamp filament cut?
YES
NO
Exchange or troubleshoot the inside lamp.
Does the F-door S/W have a normal contact?
NO
YES
Exchange or troubleshoot the door S/W
Check the connections of F and R-door S/W; check and troubleshoot the inside lamp socket.
How to check :
Separate the door S/W and measure its resistance with a measure. As the result, every Open/Close of the door S/W should turn 0/∞, respectively.
1) Where 0 alone comes out : Door S/W has Short trouble.
2) Where ∞ alone comes out : Door S/W has Open trouble.

Reference

If the door is opened, then the contact of door S/W is opened and MICOM gets applied 5V to finally sense Open. If 5V has been sensed over two minutes afterwards, then an Door-Open alarm will sound 'Ding-Dong' for 10 seconds in a one-minute cycle. For that reason, if the door S/W has failure, the refrigerator can make a "Ding-Dong" sound per a one-minute cycle. Please note step for its service!

10-8) If CoolSelect Zone™ isn't operated normally (Optional)

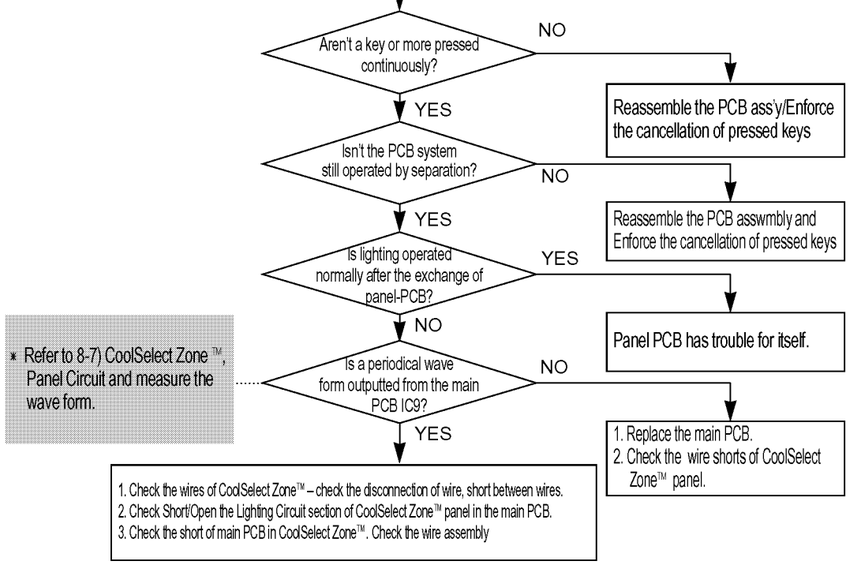
1) If the lamp of CoolSelect Zone™ is not lit.


Start
Is the connector of CoolSelect Zone™ inserted correctly in the refrigerator?
NO
Reinsert the connector; troubleshoot a bad contact.
YES
Is the connector of main PCB (CN51) inserted correctly?
NO
Reinsert the connector in the main PCB.
YES
Is the connector of CoolSelect Zone™ panel PCB inserted ?
NO
Reinsert the connector; troubleshoot a bad contact.
YES
Is lighting operated normally in the exchange of CoolSelect Zone™ panel PCB?
YES
Panel PCB has trouble for itself.
NO
1.Check the wires of CoolSelect Zone™– check the disconnection of wire, short between wires.
2. Check the Lighting Circuit of CoolSelect Zone™ panel in the main PCB for Short/Open.
3. Check the main PCB of CoolSelect Zone™ assembly for Short; the wire assembly state between the panel and main PCB.

If the Panel key isn' t selected:

2) If the Panel PCB key isn't selected:

- The basic method is applied to check – if you fail in troubleshooting after above the execution, then


Aren't a key or more pressed continuously?
NO
Reassemble the PCB ass'y/Enforce the cancellation of pressed keys
YES
Isn't the PCB system still operated by separation?
NO
Reassemble the PCB asswmbly and Enforce the cancellation of pressed keys
YES
Is lighting operated normally after the exchange of panel-PCB?
YES
Panel PCB has trouble for itself.
NO
Is a periodical wave form outputted from the main PCB IC9?
NO
1. Replace the main PCB.
2. Check the wire shorts of CoolSelect Zone™ panel.
YES
1. Check the wires of CoolSelect Zone™ – check the disconnection of wire, short between wires.
2. Check Short/Open the Lighting Circuit section of CoolSelect Zone™ panel in the main PCB.
3. Check the short of main PCB in CoolSelect Zone™. Check the wire assembly
* Refer to 8-7) CoolSelect Zone ™, Panel Circuit and measure the wave form.

8-12) Sound Function

1) Sound function
- 1-1) To make sure a command input, whenever a button is pressed, a "ding-dong" sounds.
- 1-2) When two or more buttons are pressed simultaneously or if a wrong button is pressed, there is no sound.

2) Door Open Alarm
- 2-1) When the doors remain open for 2 minutes, there are 10 times beeps.
- 2-2) If the doors continue to remain open more than 2 minutes, the additional 10 beeps interval will change to 1 minute.
- 2-3) The beeps will cease immediately when the doors are closed.

8-13) Exhibition Function

- This function is for a display purpose on the floor of show room or store.

1) Mode ON/OFF
- 1-1) For the exhibition mode, press Power Freeze and Freezer Temp. buttons simultaneously for 8 seconds until a "ding-dong" sounds.
- 1-2) Press the same time buttons again for 8 seconds to cancel this mode put with a "ding-dong" sound.

2) Operation
- 2-1) Most of the system function except the compressor operation are working properly.
- 2-2) There is no defrost cycle in this mode.

8-14) Self-Diagnostics Function

1) Self-Diagnostics in the initial Power ON
- 1-1)The control board performs a self diagnostics test within 1 second and check out the temperature sensors abilities.
- 1-2) If a sensor failure occurs, a corresponding LED segment will blink with a beep.
- 1-3) When a LED segment blinks, only the cancellation function (Press Power Freeze and Power Cool buttons simultaneously for 8 seconds) is acceptable.
- 1-4) After a replacement of bad sensor or a cancellation of this function, this self diagnostics will end.

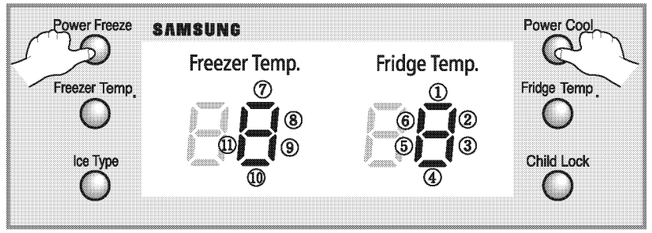
2) Self-Diagnostics in the normal operation
- 2-1) To select this function, press Power Freeze and Power Cool buttons simultaneously for 8 seconds with an audible tone.
- 2-2) In the self diagnostic mode, only corresponding LED segments will be illuminated (see the check list on the next page)
- 2-3) After a 30 second illumination of error signal, the system will return to the normal operation.

Operation Function

∗ Self-diagnostics check list

NO	Error
①	I/M-SENSOR
②	R-SENSOR
③	R-DEF-SENSOR
④	R-FAN ERROR
⑤	I/M function error
⑥	CoolSelect Zone™ SENSOR
⑦	EXIT-SENSOR
⑧	F-SENSOR
⑨	F-DEF ERROR
⑩	F-FAN ERROR
⑪	C-FAN ERROR

Press both buttons simultaneously for 8 seconds



If any LEDs blink, the corresponding sensors and components must be checked for an error.

∗ Error items of self-diagnostics

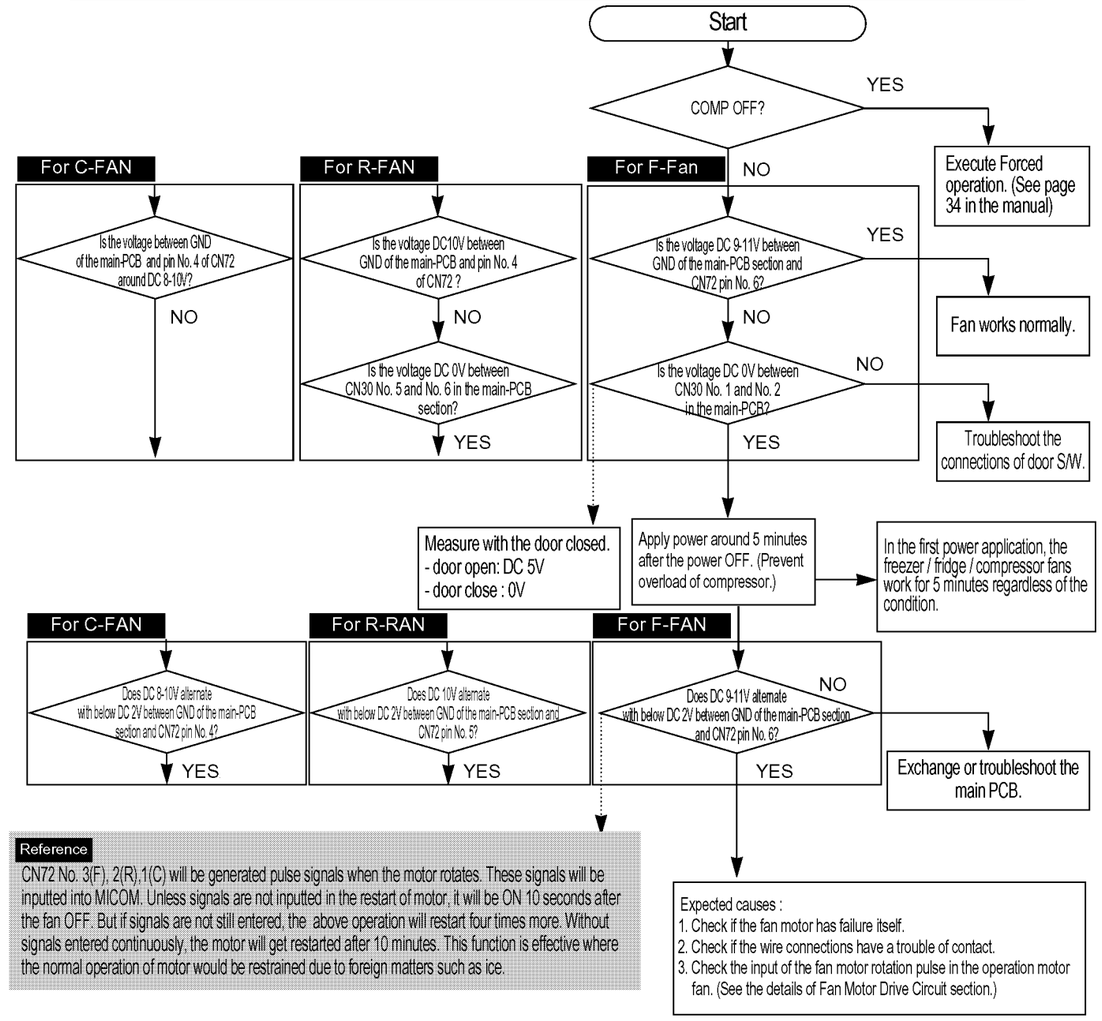
NO	Error items	LED Display	Details	Remarks
01	I/M-SENSOR	REF. SEGMENT	I/M sensor connector missing; contact failure, electric wire cut, short-circuit; I/M-sensor failure; and so on	Indicate Error when the temperature sensed by I/M-sensor is higher than 65℃ or lower than -50℃.
02	R-SENSOR	REF. SEGMENT	REF sensor connector missing; contact failure, electric wire cut, short- circuit; R-sensor itself failure; and so on	Indicate Error when the temperature sensed by R-sensor is higher than 65℃ or lower than -50℃.
03	REF DEFROST SENSOR	REF. SEGMENT	REF evaporator internal defrosting sensor connector missing; contact failure, electric wire cut, short-circuit; sensor itself failure; and so on	Indicate Error when the temperature sensed by R defrosting sensor is higher than 65℃ or lower than -50℃.
04	R-FAN ERROR	REF. SEGMENT	R-Fan motor operation failure; feedback signal line contact failed, electric wire cut, short- circuit; and so on	Indicate Error if the F and G signals generated by the FAN-motor operation are not input.
05	I/M function ERROR	REF. SEGMENT	Ice-ejector and level failed three times or more	
06	CoolSelect Zone™ sensor	REF. SEGMENT	CoolSelect Zone™ sensor connector missing; contact failed, electric wire cut, short-circuit; CoolSelect Zone™ sensor itself failed; and so on.	Indicate Error when the temperature sensed by CoolSelect Zone™ sensor is higher than 65℃ or lower than -50℃.
07	Ambient Air SENSOR	FREEZER SEGMENT	Air sensor connector missing; contact failure, electric wire cut, short-circuit; open air sensor itself failure; and so on	Indicate Error when the temperature sensed by the open air sensor is higher than 65℃ or lower than -50℃.
08	F-SENSOR	FREEZER SEGMENT	FRE sensor connector missing; contact failed, electric wire cut, short-circuit; F-Room sensor itself failure.	Indicate Error when the temperature sensed by F-sensor is higher than 65℃ or lower than -50℃.
09	FRE Defrost SENSOR	FREEZER SEGMENT	FRE evaporator defrosting sensor connector missing; contact failed, electric wire cut, short-circuit; sensor itself failure; and so on	Indicate Error when the temperature sensed by F-defrosting sensor is higher than 65℃ or lower than -50℃.
10	F-FAN ERROR	FREEZER SEGMENT	F-Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	Indicate Error if the F and G signals generated by the FAN-motor operation are not input.
11	C-FAN ERROR (COMP-FAN)	FREEZER SEGMENT	C-Fan motor operation failure; feedback signal line contact failure, motor's electric wire missing; and so on.	Indicate Error if the F and G signals generated by the FAN-motor operation are not input

Diagnostics

10-7) If fan doesn't work:

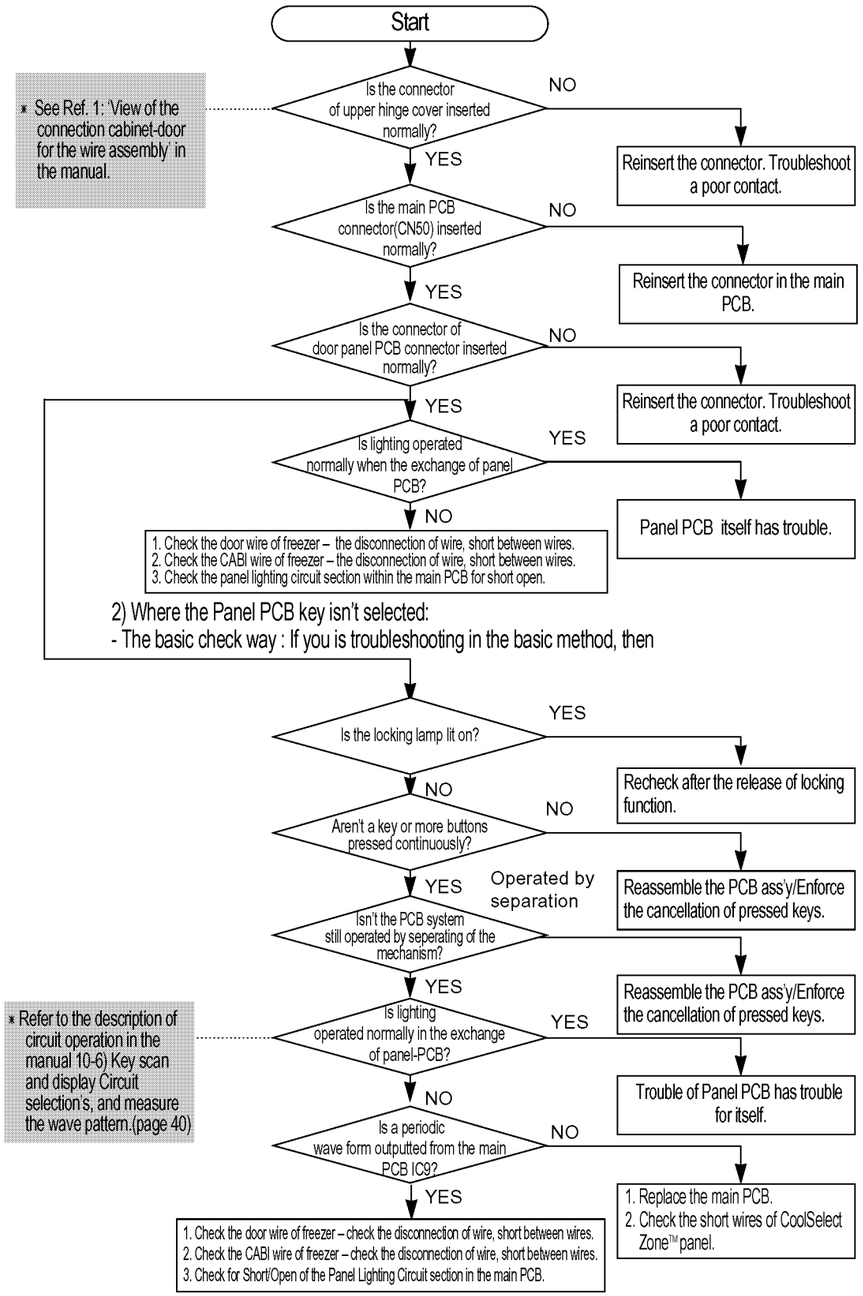
Reference

- The refrigerator has been applied with the BLDC fan moto. for Good Model without CoolSelect Zone™ and Beverage Station™ R room Fan is AC motor used. The BLDC motor is driven by DC 8-12V.
- Under the normal condition of COMP ON, it is operated together with F-FAN motor. With operation of the CoolSelect Zone™ function, the F-Fan motor may do not work. If the door is opened and closed once at a high ambient temperature, the BLDC motor would be operated after a 1-minute or longer delay. Therefore, you' re advised not to take it for an error.
- When the refrigerator is open, the freezer fan motor will also stop working simultaneously with the fan motor. (for the purpose of performance improvement).


Start
COMP OFF?
YES
NO
Execute Forced operation. (See page 34 in the manual)
For C-FAN
For R-FAN
For F-Fan
Is the voltage between GND of the main-PCB and pin No. 4 of CN72 around DC 8-10V?
Is the voltage DC10V between GND of the main-PCB and pin No. 4 of CN72 ?
Is the voltage DC 9-11V between GND of the main-PCB section and CN72 pin No. 6?
Fan works normally.
Is the voltage DC 0V between CN30 No. 5 and No. 6 in the main-PCB section?
Is the voltage DC 0V between CN30 No. 1 and No. 2 in the main-PCB?
Troubleshoot the connections of door S/W.
Measure with the door closed.
- door open: DC 5V
- door close : 0V
Apply power around 5 minutes after the power OFF. (Prevent overload of compressor.)
In the first power application, the freezer / fridge / compressor fans work for 5 minutes regardless of the condition.
For C-FAN
For R-RAN
For F-FAN
Does DC 8-10V alternate with below DC 2V between GND of the main-PCB section and CN72 pin No. 4?
Does DC 10V alternate with below DC 2V between GND of the main-PCB section and CN72 pin No. 5?
Does DC 9-11V alternate with below DC 2V between GND of the main-PCB section and CN72 pin No. 6?
Exchange or troubleshoot the main PCB.
Reference
CN72 No. 3(F), 2(R),1(C) will be generated pulse signals when the motor rotates. These signals will be inputted into MICOM. Unless signals are not inputted in the restart of motor, it will be ON 10 seconds after the fan OFF. But if signals are not still entered, the above operation will restart four times more. Without signals entered continuously, the motor will get restarted after 10 minutes. This function is effective where the normal operation of motor would be restrained due to foreign matters such as ice.
Expected causes :
1. Check if the fan motor has failure itself.
2. Check if the wire connections have a trouble of contact.
3. Check the input of the fan motor rotation pulse in the operation motor fan. (See the details of Fan Motor Drive Circuit section.)

10-6) If the panel PCB is not working normally:

1) Where lighting of the panel PCB is disabled, or only some lamps are disabled.


Start
Is the connector of upper hinge cover inserted normally?
NO
Reinsert the connector. Troubleshoot a poor contact.
YES
Is the main PCB connector(CN50) inserted normally?
NO
Reinsert the connector in the main PCB.
YES
Is the connector of door panel PCB connector inserted normally?
NO
Reinsert the connector. Troubleshoot a poor contact.
YES
Is lighting operated normally when the exchange of panel PCB?
YES
Panel PCB itself has trouble.
NO
1. Check the door wire of freezer – the disconnection of wire, short between wires.
2. Check the CABI wire of freezer – the disconnection of wire, short between wires.
3. Check the panel lighting circuit section within the main PCB for short open.
* See Ref. 1: 'View of the connection cabinet-door for the wire assembly' in the manual.

2) Where the Panel PCB key isn't selected:
- The basic check way : If you is troubleshooting in the basic method, then

Is the locking lamp lit on?
YES
Recheck after the release of locking function.
NO
Aren't a key or more buttons pressed continuously?
NO
Reassemble the PCB ass'y/Enforce the cancellation of pressed keys.
YES
Operated by separation
Isn't the PCB system still operated by seperating of the mechanism?
YES
Reassemble the PCB ass'y/Enforce the cancellation of pressed keys.
YES
Is lighting operated normally in the exchange of panel-PCB?
NO
Trouble of Panel PCB has trouble for itself.
NO
Is a periodic wave form outputted from the main PCB IC9?
NO
1. Replace the main PCB.
2. Check the short wires of CoolSelect Zone™ panel.
YES
1. Check the door wire of freezer – check the disconnection of wire, short between wires.
2. Check the CABI wire of freezer – check the disconnection of wire, short between wires.
3. Check for Short/Open of the Panel Lighting Circuit section in the main PCB.
* Refer to the description of circuit operation in the manual 10-6) Key scan and display Circuit selection's, and measure the wave pattern.(page 40)

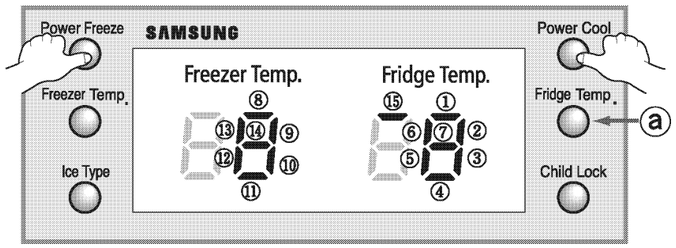
8-15) Load Operation Check Function

1) In the normal operation, press Power Freeze and Power Cool buttons simultaneously for 6 second, then the display panel will blink for 2 seconds.
2) Press Fridge Temp. button ⓐ to get into this check mode with an audible tone.
3) Each illuminating LED segment stands for the component which has an ouput signal from the control board.
4) This mode will terminate automatically after 30 seconds.

* Table of Load Mode Check List

NO	Contents
①	R-FAN High or AC motor operation
②	R-FAN Low
③	R-DEF heater
④	Start mode
⑤	Overload mode
⑥	Low-temperature mode
⑦	Exhibition mode
⑧	COMP
⑨	F-FAN High
⑩	F-FAN Low
⑪	F-DEF-Heater
⑫	C-FAN High
⑬	C-FAN Low
⑭	Dispenser-Heater
⑮	Damper
-	Normal condition

Press both buttons simultaneously for 6 seconds, all LED lights will be turned off. At this time press button ⓐ



※ For the R-FAN, only one rpm is applied for the current models, so that ① and ② show R-FAN operation only.
※ The F-FAN and C-FAN are operated to High/Low rpm automatically according to the operational condition.
※ ④⑤ and ⑥ only explain the system operation state according to the ambient condition

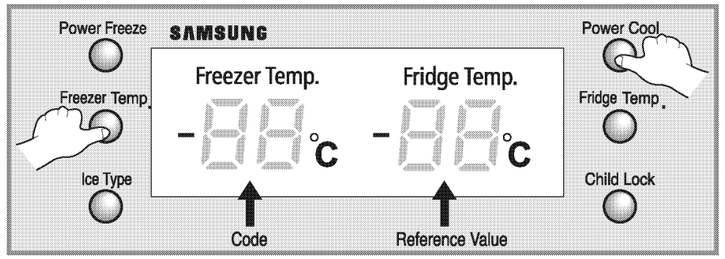
8-16) Restoration Function for Power Outage

1) When the freezer temperature is lower than 5℃, all functions on the display panel will be restored.
2) When the freezer temperature is higher than 5℃, all functions will be initialized.
(-20℃ for the freezer, 2℃ for the refrigerator, and Cubed for the Ice Type)

8-17) Set Point Shift Function

- Press Freezer Temp. and Power Cool buttons simultaneously for 12 seconds to get into this mode.
- In this mode, only the display LEDs for temperature will be ON.

Press both buttons simultaneously for 12 seconds



1) Initially, all products set the code, “0” and press Power Cool or Fridge Temp. to increase or decrease # of Reference.

2) To increase or decrease #of Code,press the Power Freeze or Freezer Temp. so that it can be adjusted such as the temperatures of freezer,refrigerator,Ice maker,and CoolSelect Zone™,and the quantity of water supply.

3) After 20 seconds from adjustment, a new setting will be stored in EEPROM and return to the normal display.

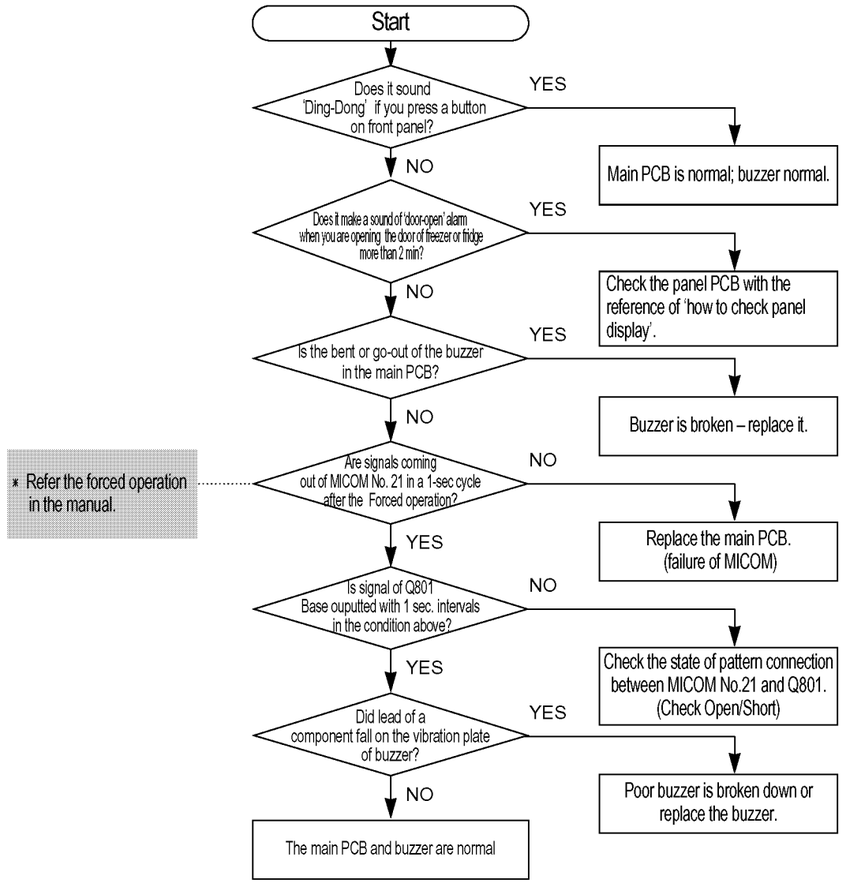
8-18) Table of Set Point Shift Function

1) Shift the freezer temperature sensor

Reference Value	0

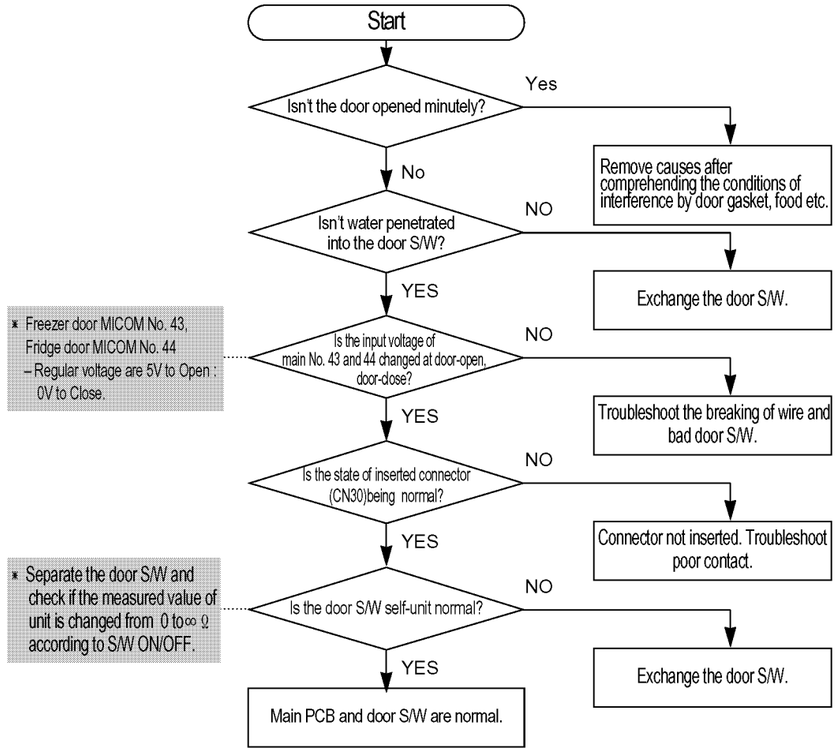
Code	Temp. shift	Code	Temp. shift
0	0	8	0.5˚C
1	-0.5˚C	9	1.0˚C
2	-1.0˚C	10	1.5˚C
3	-1.5˚C	11	2.0˚C
4	-2.0˚C	12	2.5˚C
5	-2.5˚C	13	3.0˚C
6	-3.0˚C	14	3.5˚C
7	-3.5˚C	15	4.0˚C

3) Without sound of buzzer operation

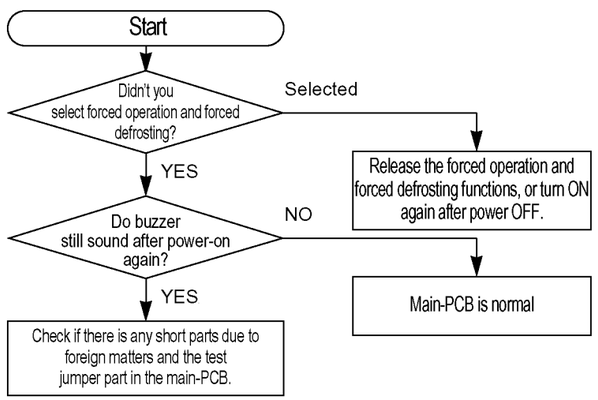

Start
Does it sound 'Ding-Dong' if you press a button on front panel?
YES
Main PCB is normal; buzzer normal.
NO
Does it make a sound of 'door-open' alarm when you are opening the door of freezer or fridge more than 2 min?
YES
Check the panel PCB with the reference of 'how to check panel display'.
NO
Is the bent or go-out of the buzzer in the main PCB?
YES
Buzzer is broken – replace it.
NO
* Refer the forced operation in the manual.
Are signals coming out of MICOM No. 21 in a 1-sec cycle after the Forced operation?
NO
Replace the main PCB. (failure of MICOM)
YES
Is signal of Q801 Base ouputted with 1 sec. intervals in the condition above?
NO
Check the state of pattern connection between MICOM No.21 and Q801. (Check Open/Short)
YES
Did lead of a component fall on the vibration plate of buzzer?
YES
Poor buzzer is broken down or replace the buzzer.
NO
The main PCB and buzzer are normal

10-5) If alarm sound

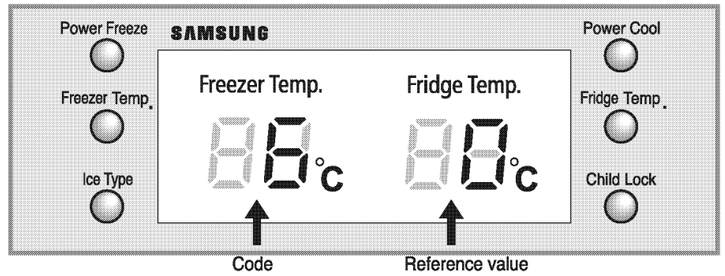
1) If "Ding-Dong" sounds continuously


Start
Isn't the door opened minutely?
Yes
Remove causes after comprehending the conditions of interference by door gasket, food etc.
No
Isn't water penetrated into the door S/W?
NO
Exchange the door S/W.
YES
* Freezer door MICOM No. 43, Fridge door MICOM No. 44 – Regular voltage are 5V to Open : 0V to Close.
Is the input voltage of main No. 43 and 44 changed at door-open, door-close?
NO
Troubleshoot the breaking of wire and bad door S/W.
YES
Is the state of inserted connector (CN30)being normal?
NO
Connector not inserted. Troubleshoot poor contact.
YES
* Separate the door S/W and check if the measured value of unit is changed from 0 to∞ Ω according to S/W ON/OFF.
Is the door S/W self-unit normal?
NO
Exchange the door S/W.
YES
Main PCB and door S/W are normal.

2) If "Ding-Dong" sounds continuously


Start
Didn't you select forced operation and forced defrosting?
Selected
Release the forced operation and forced defrosting functions, or turn ON again after power OFF.
YES
Do buzzer still sound after power-on again?
NO
Main-PCB is normal
YES
Check if there is any short parts due to foreign matters and the test jumper part in the main-PCB.

Example) If you are lowering the current temperature of the freezer by －3.0℃

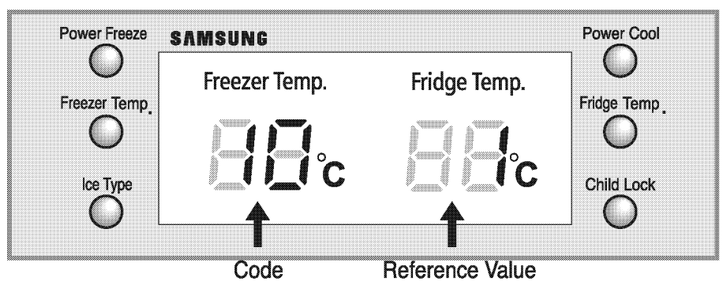


2) Shift the refrigerator temperature sensor

Reference Value	1

Code	Temp. shift	Code	Temp. shift
0	0	8	0.5℃
1	－0.5℃	9	1.0℃
2	－1.0℃	10	1.5℃
3	－1.5℃	11	2.0℃
4	－2.0℃	12	2.5℃
5	－2.5℃	13	3.0℃
6	－3.0℃	14	3.5℃
7	－3.5℃	15	4.0℃

Example) If you are raising the current temperature of the refrigerator by ＋1.5℃



■ The following options is limited to a model with the Ice Maker.

3) Adjust the time to supply water for the ice maker

Reference Value	3

Code	Time to supply water
0	5 sec
1	4 sec
2	3 sec
3	6 sec
4	7 sec
5	8 sec
6	9 sec
7	10 sec
8	12 sec
9	13 sec
10	15 sec
11	17 sec
12	19 sec
13	21 sec
14	23 sec
15	25 sec

4) Shift the Ice maker temperature sensor

Reference Value	4

Code	Ice maker temperature sensor
0	0˚C
1	-0.5˚C
2	-1.0˚C
3	-1.5˚C
4	0.5˚C
5	1.0˚C
6	1.5˚C
7	2.0˚C

5) Shift the CoolSelect Zone™ temperature sensor.

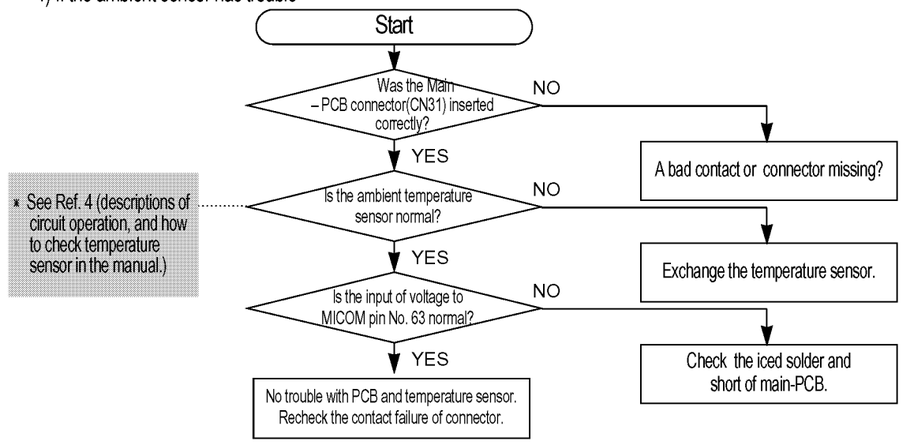
Reference Value	20

Code	CoolSelect Zone™ temperature sensor
0	0
1	- 0.5˚C
2	- 1.0˚C
3	- 1.5˚C
4	- 2.0˚C
5	- 2.5˚C
6	- 3.0˚C
7	- 3.5˚C

10-4) If there is a trouble with self-diagnosis

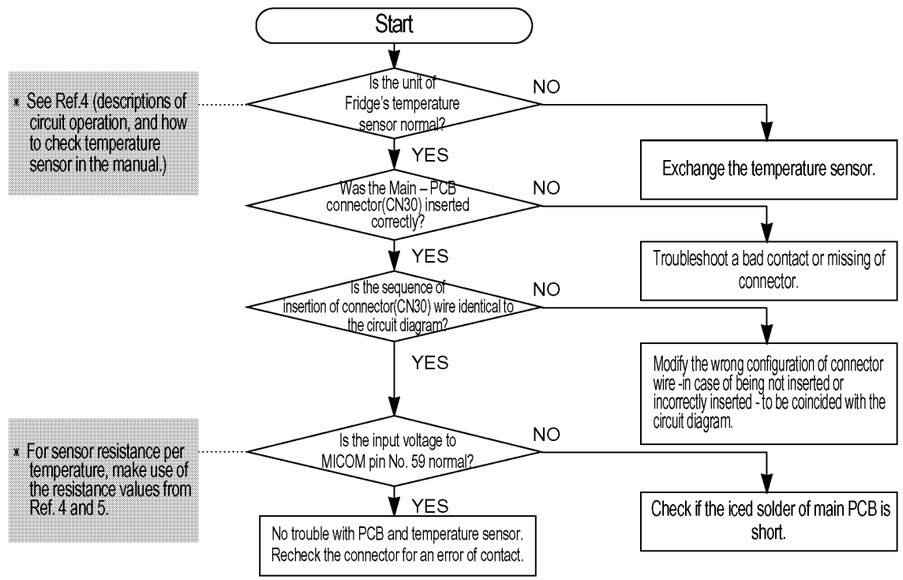
- Error of sensor can be seen on the front display of refrigerator. If power is impressed to refrigerator first, an failure of sensor is found. The refrigerator will stop working and display(blink) the region of trouble-occurred sensor repetitively.
- Even if sensor has failure during the operation, the refrigerator will not stop working but can run the normal cooling operation because of being operated in the Emergency Operation mode. Therefore you' re requested to use how to check self-diagnosis(at page 31) in the manual.

1) If the ambient sensor has trouble

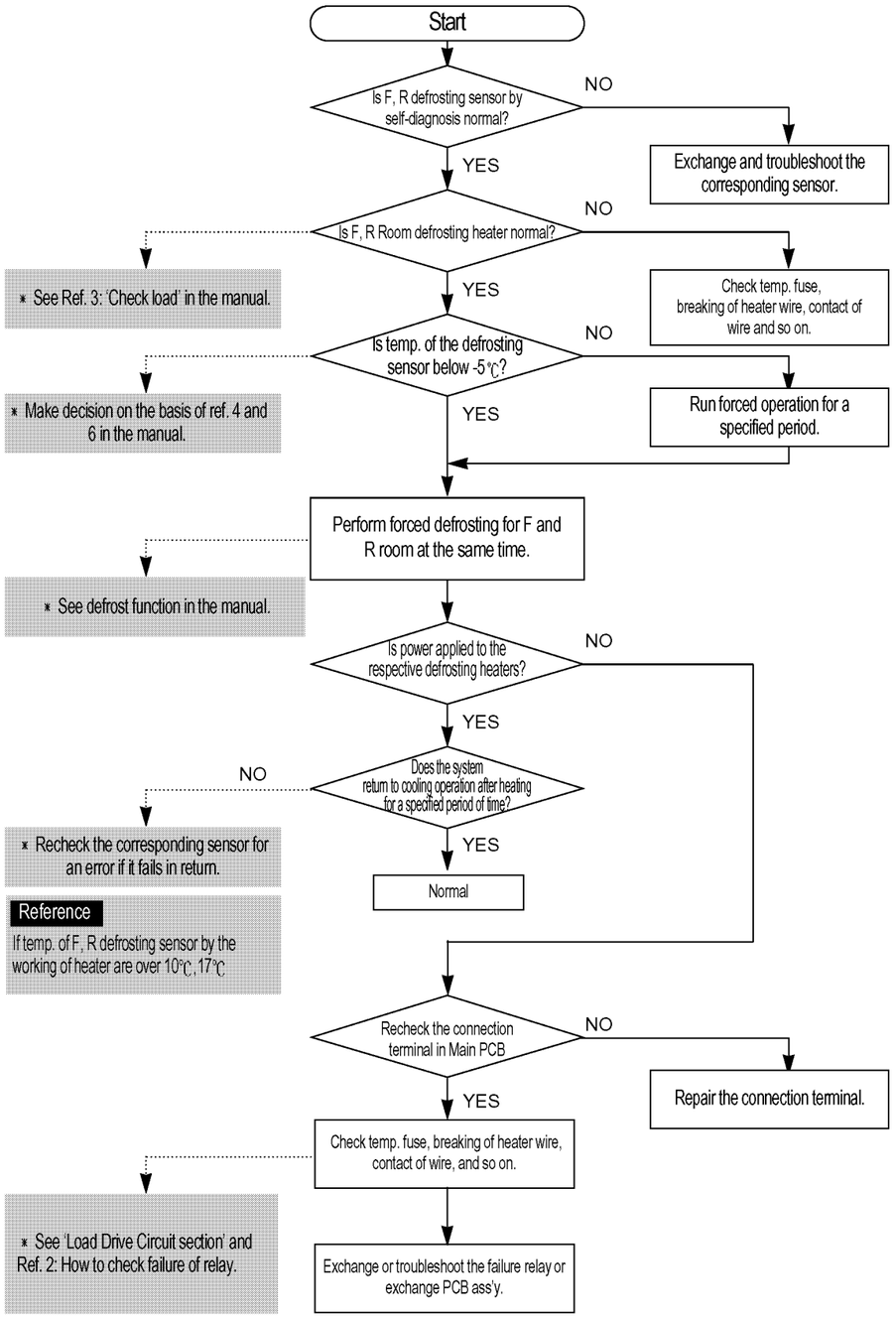

Start
Was the Main – PCB connector(CN31) inserted correctly?
NO
A bad contact or connector missing?
YES
Is the ambient temperature sensor normal?
NO
Exchange the temperature sensor.
YES
Is the input of voltage to MICOM pin No. 63 normal?
NO
Check the iced solder and short of main-PCB.
YES
No trouble with PCB and temperature sensor. Recheck the contact failure of connector.
* See Ref. 4 (descriptions of circuit operation, and how to check temperature sensor in the manual.)

2) If the temperature sensor of R room has trouble

- The sensor of freezer is connected in parallel with Bimetal. See the contents of Temperature Sensing Circuit section in the description of circuit operation.


Start
Is the unit of Fridge's temperature sensor normal?
NO
Exchange the temperature sensor.
YES
Was the Main – PCB connector(CN30) inserted correctly?
NO
Troubleshoot a bad contact or missing of connector.
YES
Is the sequence of insertion of connector(CN30) wire identical to the circuit diagram?
NO
Modify the wrong configuration of connector wire -in case of being not inserted or incorrectly inserted -to be coincided with the circuit diagram.
YES
Is the input voltage to MICOM pin No. 59 normal?
NO
Check if the iced solder of main PCB is short.
YES
No trouble with PCB and temperature sensor. Recheck the connector for an error of contact.
* See Ref.4 (descriptions of circuit operation, and how to check temperature sensor in the manual.)
* For sensor resistance per temperature, make use of the resistance values from Ref. 4 and 5.

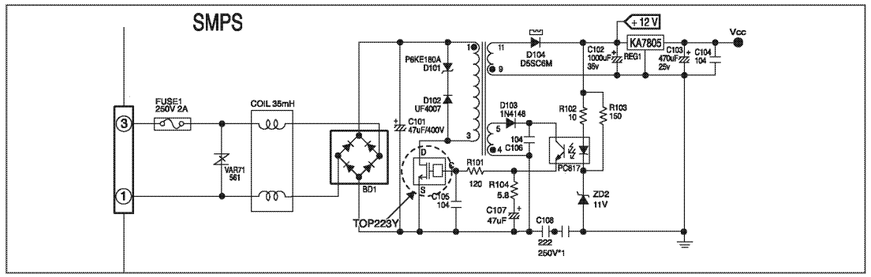
10-3) If defrost function


Start
Is F, R defrosting sensor by self-diagnosis normal?
NO
Exchange and troubleshoot the corresponding sensor.
YES
Is F, R Room defrosting heater normal?
NO
* See Ref. 3: 'Check load' in the manual.
YES
Check temp. fuse, breaking of heater wire, contact of wire and so on.
Is temp. of the defrosting sensor below -5℃?
NO
* Make decision on the basis of ref. 4 and 6 in the manual.
YES
Run forced operation for a specified period.
Perform forced defrosting for F and R room at the same time.
* See defrost function in the manual.
Is power applied to the respective defrosting heaters?
NO
YES
Does the system return to cooling operation after heating for a specified period of time?
NO
YES
* Recheck the corresponding sensor for an error if it fails in return.
Normal
Reference
If temp. of F, R defrosting sensor by the working of heater are over 10℃, 17℃.
Recheck the connection terminal in Main PCB
NO
Repair the connection terminal.
YES
Check temp. fuse, breaking of heater wire, contact of wire, and so on.
* See 'Load Drive Circuit section' and Ref. 2: How to check failure of relay.
Exchange or troubleshoot the failure relay or exchange PCB ass'y.

9. Circuit Descriptions

9-1) Source Power Circuit 38
9-2) Oscillator Circuit 38
9-3) Reset Circuit 38
9-4) Door S/W Sensing Circuit 39
9-5) Temperature Sensing Circuit 39
9-6) Key Scan and Display Circuit 40
9-7) CoolSelect Zone™ Panel Circuit 42
9-8) Fan Motor(BLDC) Drive Circuit 43
9-9) EEPROM Circuit 44
9-10) Option Circuit 44
9-11) Load Drive Circuit 44

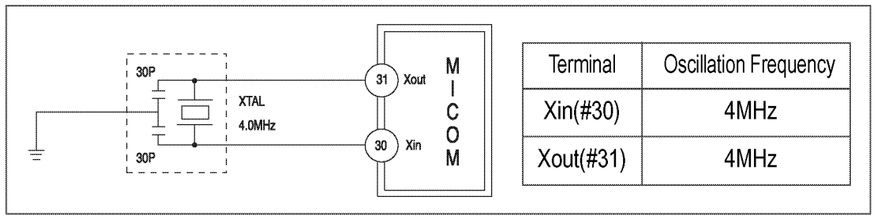
9-1) Source Power Circuit



This circuit shows SMPS(Switch Mode Power Supply) which converts AC input voltage to a high DC voltage. The input AC source power is converted to DC through a wave rectifier (BD1) and the converted DC power will generate a constant waveform on the switching transformer using a high speed (100KHz) switching motion of TOP223Y. The D104 will rectify the generated voltage and transform into a steady 12V DC source power used for the digital display panel and relays. The regulator (KA7805) finally transforms into 5V DC source power for the control board and sensor's circuits.

Caution) Be careful to handle this circuit due to high voltages (AC115V, DC170V)

9-2) Oscillator Circuit

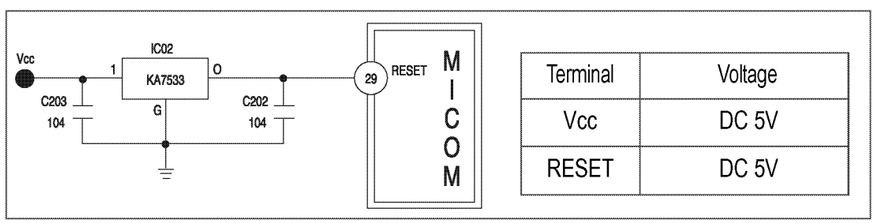


Terminal	Oscillation Frequency
Xin(#30)	4MHz
Xout(#31)	4MHz

This is oscillator circuit to generate synchronous clocks used to calculate the time for the microprocessor operation.

Note) If the specification of a resonator changes, micro-processor can not work properly.

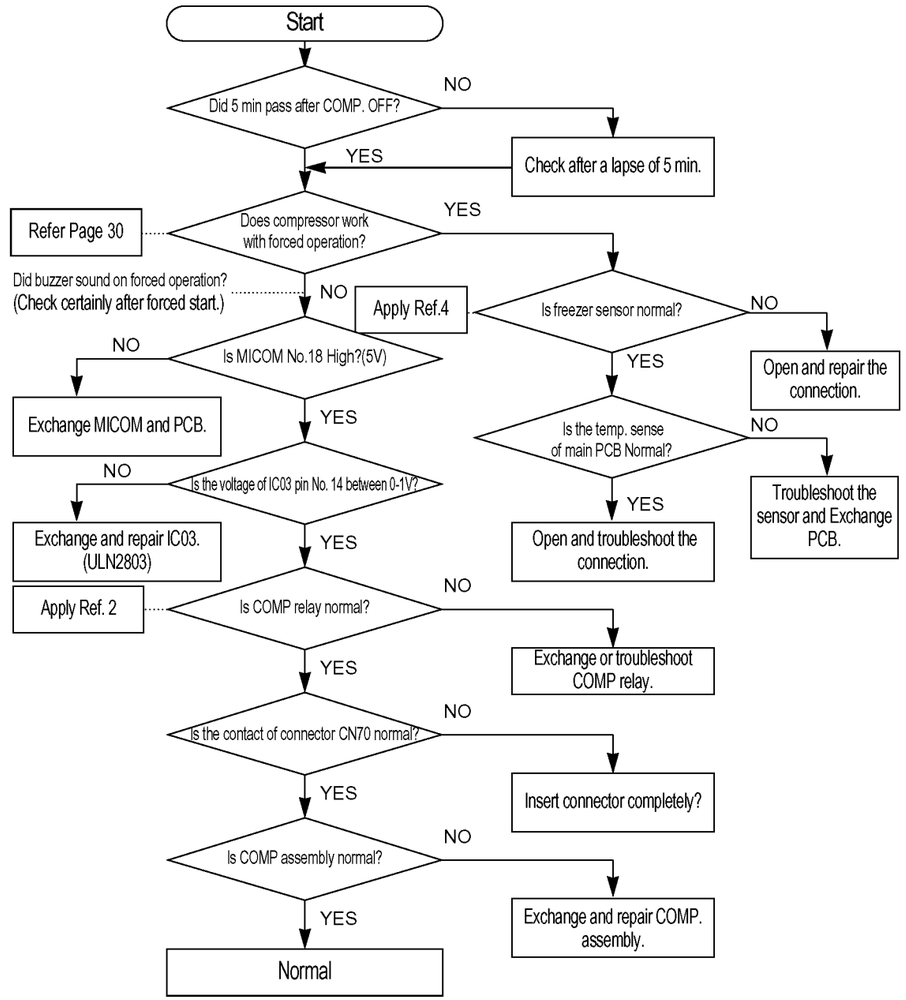
9-3) Reset Circuit



Terminal	Voltage
Vcc	DC 5V
RESET	DC 5V

The reset circuit is to initialize the values RAM & other sectors of micro-processor. When the power is engaged initially, the reset voltage becomes "Low," and it keeps "High" in the normal operation.

10-2) If the compressor and cooling fan motor don't work normally



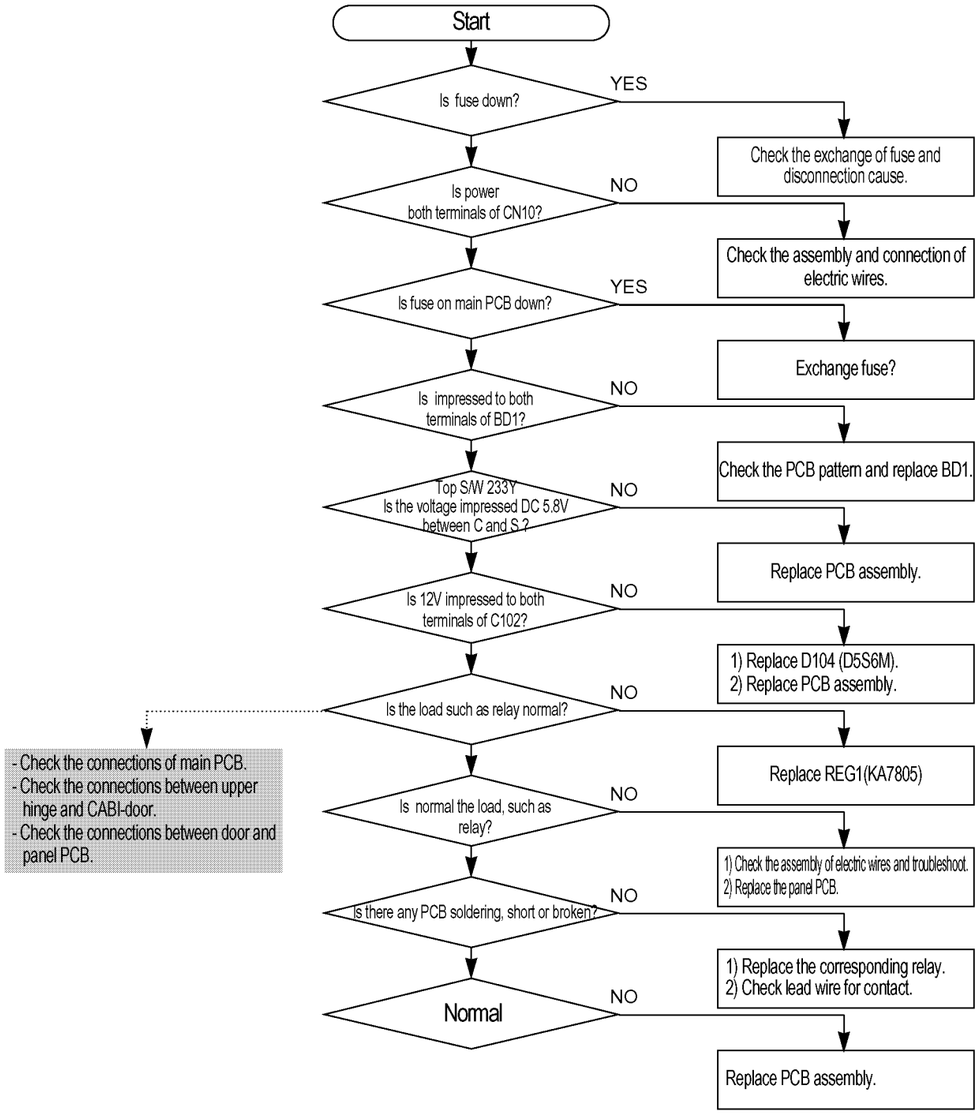
10. Diagnostics

10-1) If power is not ON

Caution!

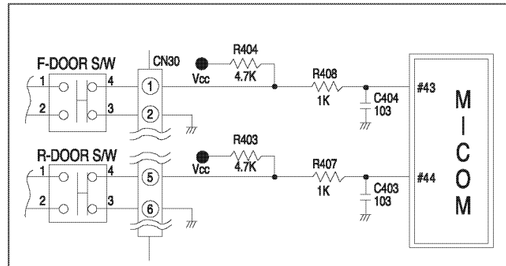
At the power of main PCB, the power and a high-voltage over occur. Please take care of yourself on repair and measurement.

To check the main PCB, please apply descriptions of operation and references in the manual.


Start
Is fuse down?
YES
Check the exchange of fuse and disconnection cause.
Is power both terminals of CN10?
NO
Check the assembly and connection of electric wires.
Is fuse on main PCB down?
YES
Exchange fuse?
Is impressed to both terminals of BD1?
NO
Check the PCB pattern and replace BD1.
Top S/W 233Y Is the voltage impressed DC 5.8V between C and S ?
NO
Replace PCB assembly.
Is 12V impressed to both terminals of C102?
NO
1) Replace D104 (D5S6M).
2) Replace PCB assembly.
Is the load such as relay normal?
NO
Replace REG1(KA7805)
- Check the connections of main PCB.
- Check the connections between upper hinge and CABI-door.
- Check the connections between door and panel PCB.
Is normal the load, such as relay?
NO
1) Check the assembly of electric wires and troubleshoot.
2) Replace the panel PCB.
Is there any PCB soldering, short or broken?
NO
1) Replace the corresponding relay.
2) Check lead wire for contact.
Normal
NO
Replace PCB assembly.

Circuit Descriptions

9-4) Door S/W Sensing Circuit

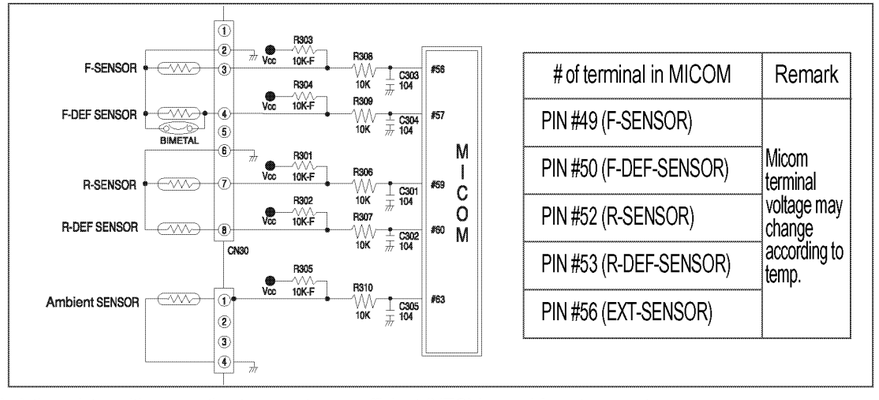


Terminal	Operation	Volt(state)
Freezer	DOOR CLOSE	0V (LOW)
	DOOR OPEN	5V (HIGH)
Ref.	DOOR CLOSE	0V (LOW)
	DOOR OPEN	5V (HIGH)

1) The terminals, ② and ⑥ of the connector (CN30) are grounded, and DC5V (Vcc) is supplied to the terminals, ⑤ and ⑥ through the resistors, R404 and R403 for the freezer and the refrigerator door, respectively.
2) The micro-processor senses the door's open and close based on engaged voltages, "Low(0V)" and "High(5V)," respectively.

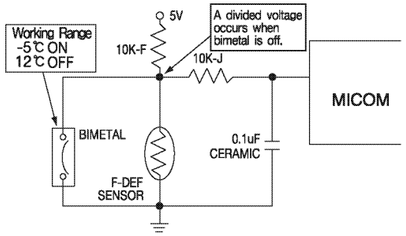
Note) The door switch always should be checked when the evaporator fan is not running while the door is closed.

9-5) Temperature Sensing Circuit



# of terminal in MICOM	Remark
PIN #49 (F-SENSOR)	Micom terminal voltage may change according to temp.
PIN #50 (F-DEF-SENSOR)	
PIN #52 (R-SENSOR)	
PIN #53 (R-DEF-SENSOR)	
PIN #56 (EXT-SENSOR)	

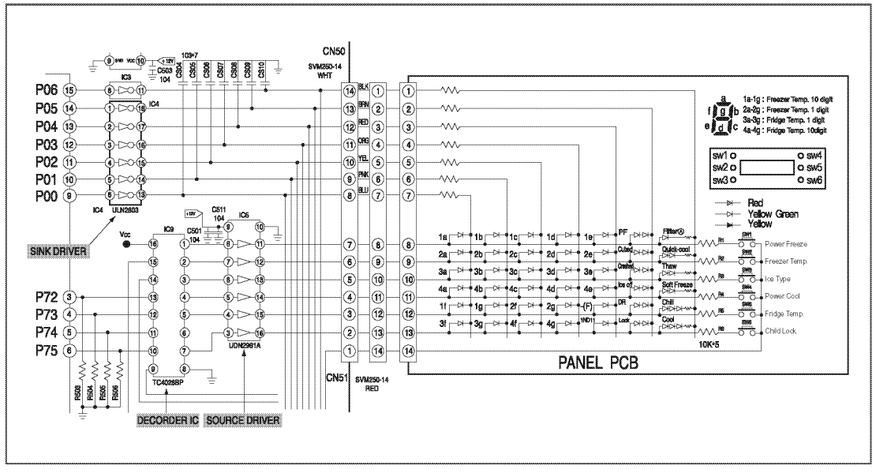
1) A thermistor with a negative temperature coefficient (NTC) is used for a temperature sensor.
2) Resistors, R 306 ~ R310 and capacitors, C 301 ~ C 305 are used for a noise protection purpose.
3) For the F-sensor, the input voltage into the micro processor (MICOM), VF is calculated by (Rth x Vcc)/(R303+ Rth), where Rth is a corresponding resistance to the thermistor's output (See Ref. 6 in Appendix).
4) The F-Def sensor is connected with a bimetal and a temperature sensor is in parallel. In a normal operation of the system, the bimetal is on and 0V is input into the micro-processor. During a defrost cycle, the bimetal will be off from 54°F, and a divided voltage with R304 enter to the micro-processor to keep sensing the set temperature.



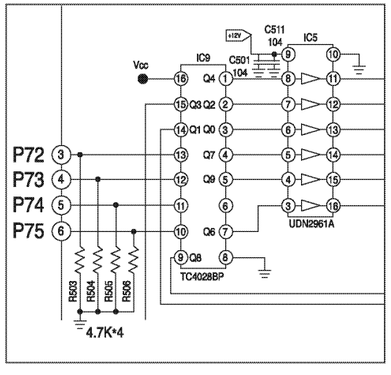
Note)

1) F-DEF-sensor and Bimetal work in parallel.
2) At the first power on, an open error (5V input to MICOM) can be detected by self-diagnostics. A short error will be ignored.
3) In self-diagnostics during a normal operation, only an open error can be detected.
4) The F-DEF heater will be off at the set temperature after the bimetal is off.

9-6) Key Scan and Display Circuit



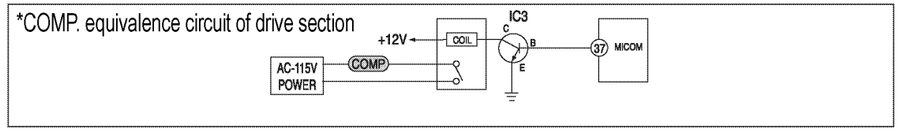
1) Key Scan and display operation.

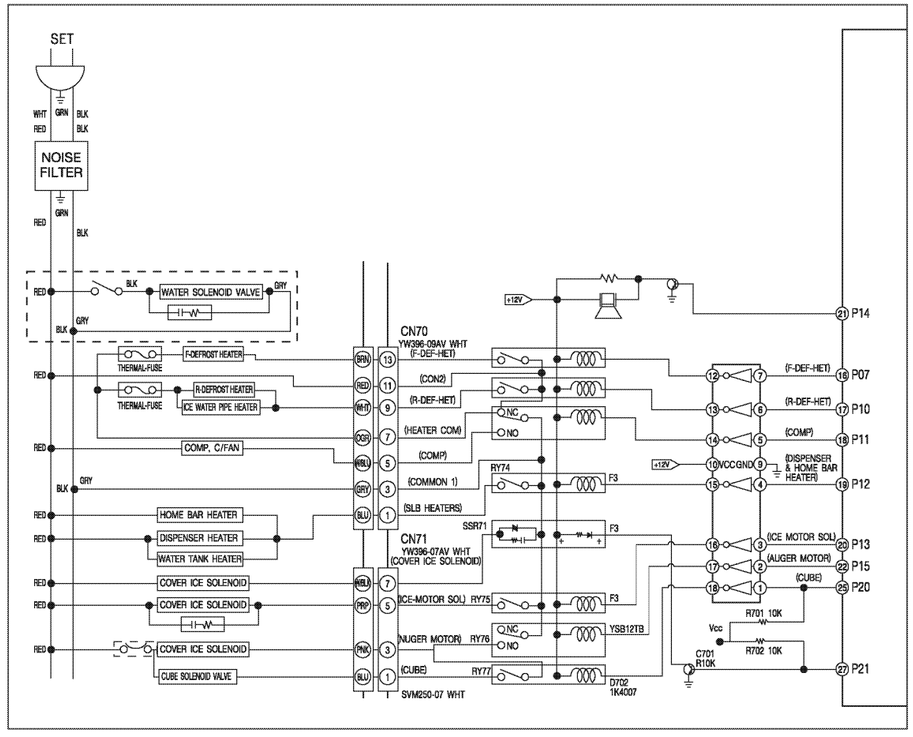


The model uses a decorder IC which 4 inputs and 9 outputs. If the IC 9 decorder (TC4028BP) receivesd signals from MICOM pins (3 ~ 6), an output signal per 2 miliseconds comes out from Q3, Q41, Q8, Q6, Q9, Q7, Q0, Q2, and Q4 pin in sequence. This signal enters to a driver IC input terminal of the CoolSelect Zone™ PCB and IC5 (TD 62783AP), then approximate 11V peaks will generate from an output terminal as shown on the next page.

4) The principles of other loads is the same as 3) item described.

Note) SSR(Solid State Relay) is a kind of Relay.



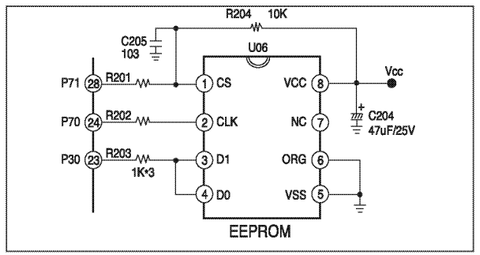


1-3) When the motor rpm is in 600~700, it will stop automatically and it tries to resume after 10 seconds. If the motor is not working properly after 5 time trials, it will rest for 10 minutes, then try to resume again. This process will be done continuously.

Note) If there is an abnormal situation for the motor, the self-diagnostics will show the corresponding LED segment.

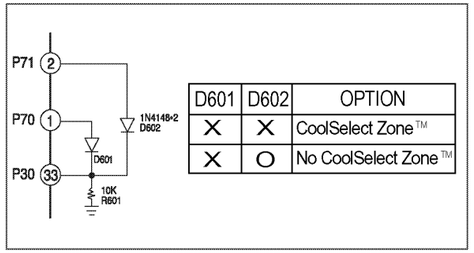
9-9) EEPROM Circuit

EEPROM is semiconductor memory not to be erased. It can be used in the area of unstable electric power.



9-10) Option Circuit

There are a variety of models that have a different function. A different model can set up to use option circuit as shown.



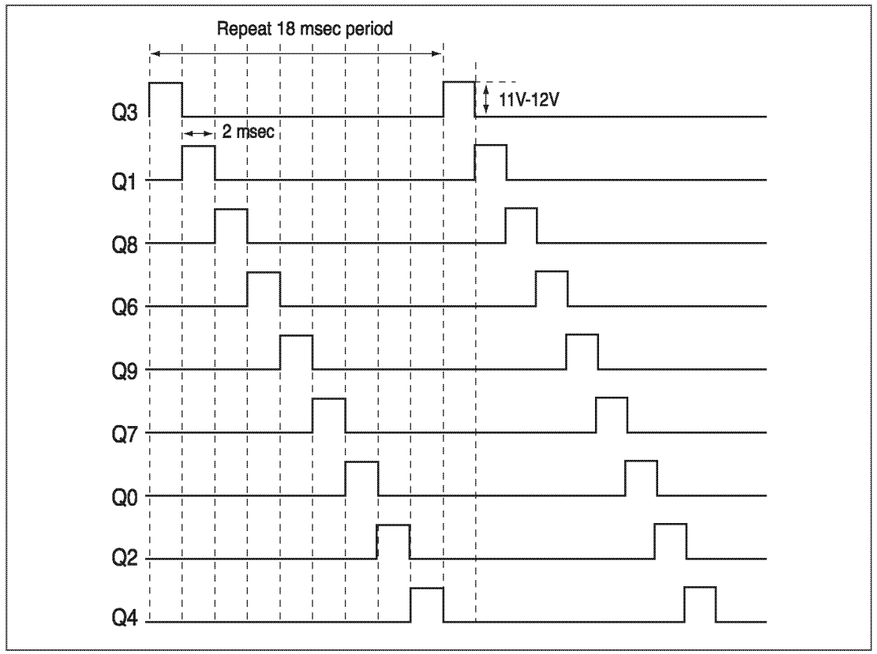
D601	D602	OPTION
X	X	CoolSelect Zone™
X	O	No CoolSelect Zone™

9-11) Load Drive Circuit

1) The control of load in the system is accomplished by the main PCB.

2) Most of relays or SSRs can control compressor, refrigerator/freezer defrost heater, and several option functions.

3) For compressor, #18 pin of micro processor signals High (5V). This signal inputs #5 pin of IC3 and #14 of output terminal which have base and collector functions of IC3 turns on and connects the GND. Relay 73 will be grounded through #14 of IC. Magnetic lines will generate so that the second side of RY73 is activated and 115V is supplied to the compressor. On the other hands, if #18 of micro processor turns Low(0V), #5 of IC3, the current of RY 73 relay, and magnetic line will shut down in sequence. A contact point in secondary side of Relay 73 is off. Finally compressor will stop.



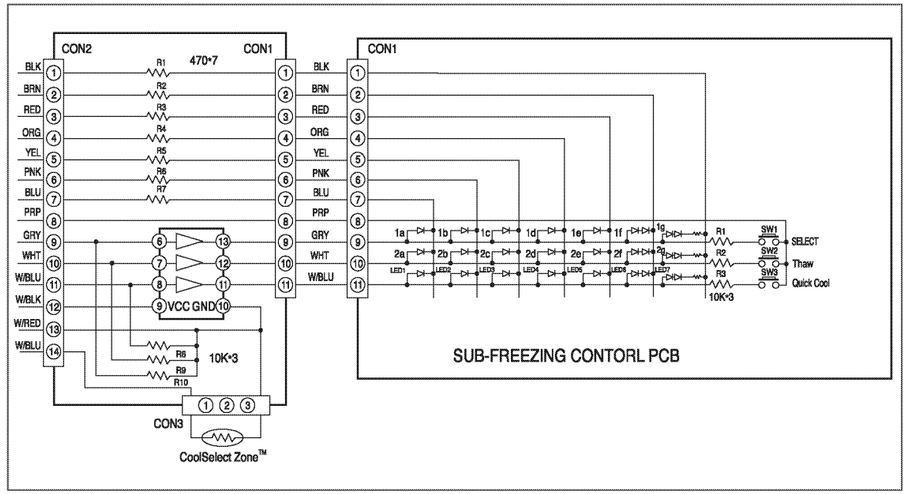
The step signals of DC 11~ 12V will be generated periodically. If a sink signal outputs from IC4, DC 11-12V will be applied to the LED input terminal and sink the LED output terminal to 0V. Therefore, LED will be ON for 2 miliseconds.

2) Key Scan

The 6 step signals, Q6~Q4 are applied to scan the 6 keys (buttons). When SW6 is pressed, the step signal from Q6 will be reduced to 5V and entered to the MICOM, then MICOM will match a corresponding function for SW6 key.

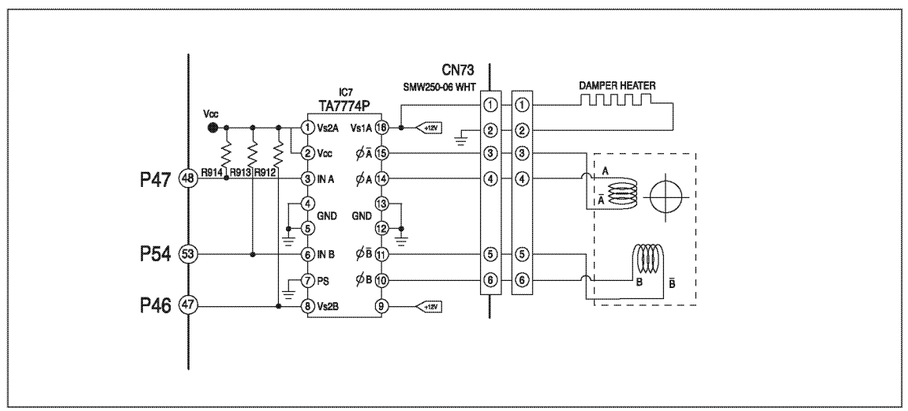
9-7) CoolSelect Zone™ Panel Circuit

1) CoolSelect Zone™ display panel and temperature sensor



1-1) CoolSelect Zone™ is referred to as a storage drawer to implement features of Quick cool, Thaw, and Select (Soft Freeze, Chill, and Cool).
1-2) CoolSelect Zone™ has an additional display panel. Panel LED are off while the doors are closed. When a door is open, micro-processor senses its signal and LEDs will be on.
1-3) The basic operational principle is the same as the key scan process.
1-4) The additional sensor can measure the temperature of CoolSelect Zone™. This sensor enables to control the features of CoolSelect Zone™.

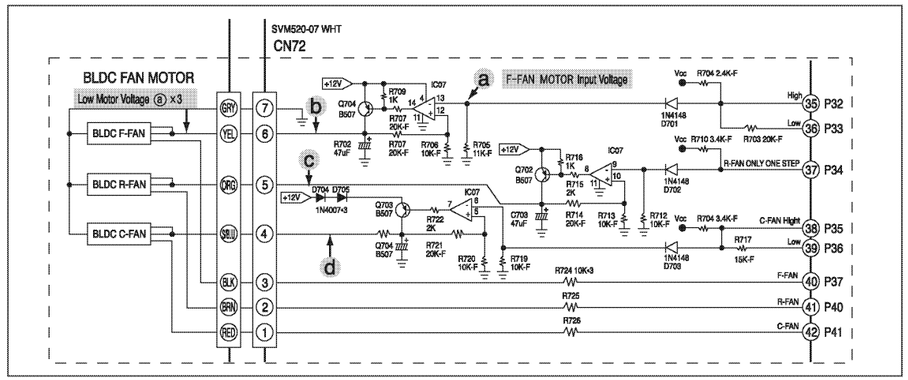
2) Damper drive circuit



2-1) CoolSelect Zone™ Drawer is controlled by a damper to supply or block cold air. For Quick Cool, the damper will be close. So cold air is supplied only to CoolSelect Zone™ Drawer. For Thaw, the evaporator heater of refrigerator is ON and the damper is controlled by the refrigerator temperature.
2-2) The stepping motor controlled by a Driver IC TA7774P(IC7) operates the damper. The stepping motor uses 4 combined signals to open and close the damper.

Note) To prevent the malfunction from a high humidity, a DC 12V, 1 watt heater is mounted and activated continuously.

9-8) Fan Motor (BLDC) Drive Circuit



1) Motor drive circuit

1-1) This refrigerator adopts a BLDC motor to decrease energy consumption, Motors of the freezer, refrigerator and the machine compartment are composed of the BLDC. For good model, R-fan is operated by AC Motor.

1-2) Voltages between high-speed and low-speed

	Voltage of motor			Remark
	Measure b (F-FAN)	Measure C (R-FAN)	Measure d(C-FAN)	
High	11.1V	10V	10V	In the normal operation, MICOM No. 40, 41 and 42 applies a constant frequency; and MICOM defects the signal to check the failure of motor. (frequency(Hz) ×12 = motor rpm)
Low	10V	10V	8.3V	

Note) Under the conditions, the fans will be operated in 2 options, such as High and Low mode. Generally, it is operated in the High mode during a day time and in the Low mode at night.